PCG-F370/F390 (UC)

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PCG-F370/F390 (UC)

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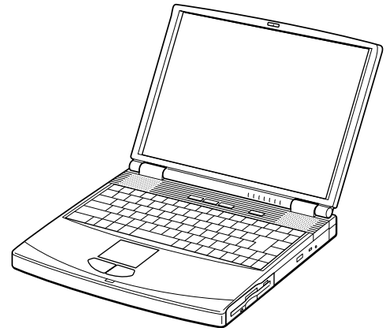
PCG-F370/F390

SERVICE MANUAL

US Model
Canadian Model



ILLUST : PCG-F390

i™ S400

Notebook Computer

SONY®

9-872-006-11

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Caution Markings for Lithium/Ion Battery - The following or similar texts shall be provided on battery pack of equipment or in both the operating and the service instructions.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

CAUTION: The battery pack used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 100°C (212°F) or incinerate.
Dispose of used battery promptly.
Keep away from children.

CAUTION: Changing the back up battery.
- Overcharging, short circuiting, reverse charging, multilation or incineration of the cells must be avoided to prevent one or more of the following occurrences; release of toxic materials, release of hydrogen and/or oxygen gas, rise in surface temperature.
- If a cell has leaked or vented, it should be replaced immediately while avoiding to touch it without any protection.

Service and Inspection Precautions

1. Obey precautionary markings and instructions

Labels and stamps on the cabinet, chassis, and components identify areas requiring special precautions. Be sure to observe these precautions, as well as all precautions listed in the operating manual and other associated documents.

2. Use designated parts only

The set's components possess important safety characteristics, such as noncombustibility and the ability to tolerate large voltages. Be sure that replacement parts possess the same safety characteristics as the originals. Also remember that the ⚠ mark, which appears in circuit diagrams and parts lists, denotes components that have particularly important safety functions; be extra sure to use only the designated components.

3. Always follow the original design when mounting parts and routing wires

The original layout includes various safety features, such as inclusion of insulating materials (tubes and tape) and the mounting of parts above the printer board. In addition, internal wiring has been routed and clamped so as to keep it away from hot or high-voltage parts. When mounting parts or routing wires, therefore, be sure to duplicate the original layout.

4. Inspect after completing service

After servicing, inspect to make sure that all screws, components, and wiring have been returned to their original condition. Also check the area around the repair location to ensure that repair work has caused no damage, and confirm safety.

5. When replacing chip components...

Never reuse components. Also remember that the negative side of tantalum capacitors is easily damaged by heat.

6. When handling flexible print boards...

- The temperature of the soldering-iron tip should be about 270C.
- Do not apply the tip more than three times to the same pattern.
- Handle patterns with care; never apply force.

Caution: Remember that hard disk drives are easily damaged by vibration. Always handle with care.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

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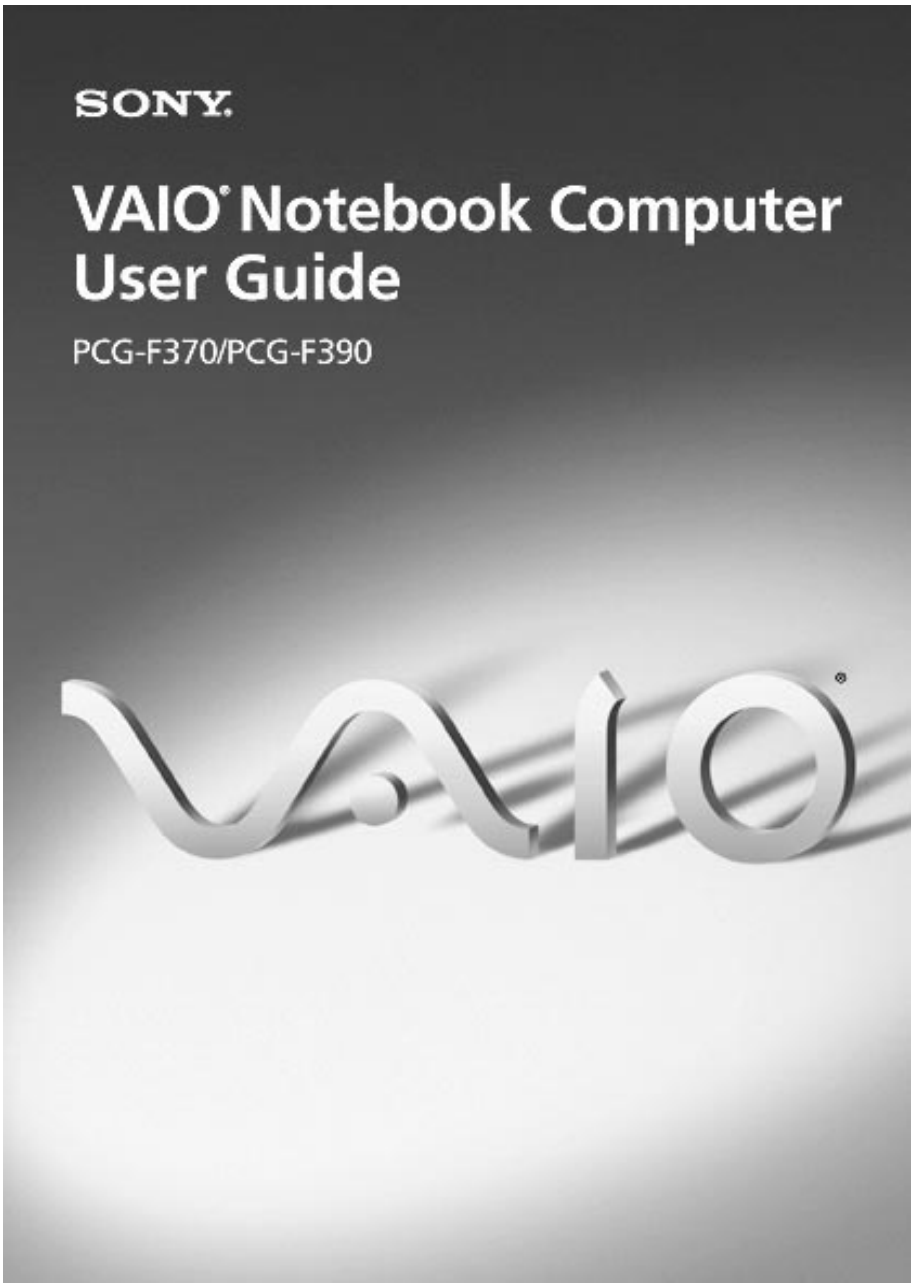
- Abbreviations
  UC : US model / Canadian model

1-1. VAIO Notebook Computer User Guide



SONY

VAIO® Notebook Computer User Guide

PCG-F370/PCG-F390

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Owner's Record

The model number and serial number are located on the bottom of your Sony VAIO® Notebook. Record the serial number in the space provided here. Refer to the model and serial number when you call your Sony Service Center.

Model Number: PCG-F370/PCG-F390

Serial Number:_____

Safety Information

WARNING

- To prevent fire or shock hazard, do not expose your notebook computer to rain or moisture.
- To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.
- Never install modem or telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wire or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using the modem during an electrical storm.
- Do not use the modem or a telephone to report a gas leak in the vicinity of the leak.
- A socket outlet should be as close as possible to the unit and easily accessible.

! **To change the backup battery, please contact your nearest Sony Service Center.**

! **For DVD-ROM: As the laser beam used in the DVD-ROM drive is harmful to the eyes, do not attempt to disassemble the drive cabinet. Refer servicing to qualified personnel only.**

AVERTISSEMENT

- Pour prévenir tout risque d'incendie ou d'électrocution, garder cet appareil à l'abri de la pluie et de l'humidité.
- Pour prévenir tout risque d'électrocution, ne pas ouvrir le châssis de cet appareil et ne confier son entretien qu'à une personne qualifiée.
- L'appareil doit être le plus près possible d'une prise murale pour en faciliter l'accès.

Regulatory Information.

Declaration of Conformity

Trade Name: SONY

Model No: PCG-F370/PCG-F390

Responsible Party:
Sony Electronics Inc.

Address:
1 Sony Drive
Park Ridge, NJ 07656

Telephone No.: 201-930-6970

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Only peripherals (computer input / output devices, terminals, printers, etc.) that comply with FCC Class B limits may be attached to this computer product. Operation with non-compliant peripherals is likely to result in interference to radio and television reception.

All cables used to connect peripherals must be shielded and grounded. Operation with cables, connected to peripherals, that are not shielded and grounded, may result in interference to radio and television reception.

FCC Part 68

This equipment complies with Part 68 of the FCC rules. On the bottom of this equipment is a label that contains, among other information, the FCC equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

This modem uses the USOC RJ-11 telephone jack.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.

If the terminal equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operations of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with this equipment, please contact 1-888-4SONYPC (1-888-476-6972), or write to the Sony Customer Information Center, One Sony Drive, Park Ridge, NJ 07656, for repair and/or warranty information. If the trouble is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is resolved.

Repair of this equipment should be made only by a Sony Service Center or Sony authorized agent. For the Sony Service Center nearest you, call 1-888-4SONYPC (1-888-476-6972).

This equipment cannot be used on public coin service provided by the telephone company. Connection to Party Line Service is subject to state and possible provincial tariffs. (Contact the state or provincial utility service commission, public service commission, or corporation commission, for information.)

Telephone Consumer Protection Act of 1991 (United States)

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone facsimile machine unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity, or individual sending the message, and the telephone number of the sending machine or such business, other entity, or individual.

In order to program this information into your facsimile machine, see your fax software documentation.

Telephone Consumer Guidelines (Canada)

Please refer to your telephone directory under 'Privacy Issues' and/or 'Terms of Service.' For more detailed information, please contact:

CRTC
Terrasses de la Chaudiére, Tour centrale
1 promenade du Portage, 5 étage Hull PQ K1A 0N2.

This Class B digital apparatus complies with Canadian ICES-003.

Cet àppareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

DISPOSAL OF LITHIUM ION BATTERY

You can return your unwanted lithium ion batteries to your nearest Sony Service Center or Factory Service Center.

In some areas the disposal of lithium ion batteries in household or business trash may be prohibited.

For the Sony Service Center nearest you, call 1-888-476-6972 in the United States or 1-800-961-7669 in Canada.

! Do not handle damaged or leaking lithium ion batteries.

! Ne pas manipuler les batteries au lithium-ion qui fuient ou sont endommagées.

! **Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.**

! **Une batterie non conforme présente un danger d'explosion. La remplacer seulement par une batterie identique ou de type équivalent recommandé par le fabricant. Évacuer les batteries usées selon les directives du fabricant.**

! **The battery pack used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 212°F (100°C) or incinerate. Dispose of used battery promptly. Keep away from children.**

! **La manutention incorrecte du module de batterie de cet appareil présente un risque d'incendie ou de brûlures chimiques. Ne pas démonter, incinérer ou exposer à une température de plus de 100°C. Évacuer promptement la batterie usée. Garder hors de portée des enfants.**

INDUSTRY CANADA NOTICE

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection.

The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Equipment malfunctions or any repairs or alterations made by the user to this equipment may give the telecommunications company cause to request that the user disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5. The Ringer Equivalence Number for this equipment is 0.4.

AVIS DE L'INDUSTRIE CANADA

AVIS: L'étiquette d'Industrie Canada identifie le matériel homologué.

Cette étiquette certifie que le matériel est conforme aux normes de protection, d'exploitation et de sécurité des réseaux de télécommunications, comme le prescrivent les documents concernant les exigences techniques relatives au matériel terminal. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être coordonnées par un représentant désigné par le fournisseur. L'entreprise de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à un électricien, selon le cas.

AVIS: L'indice d'équivalence de la sonnerie (IES) assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface.

La terminaison d'une interface téléphonique peut consister en une combination de quelques dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.

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Welcome

Congratulations on your purchase of the Sony VAIO® notebook computer. Sony has combined leading-edge technology in audio, video, computing, and communications to provide you with state-of-the-art personal computing.

Features

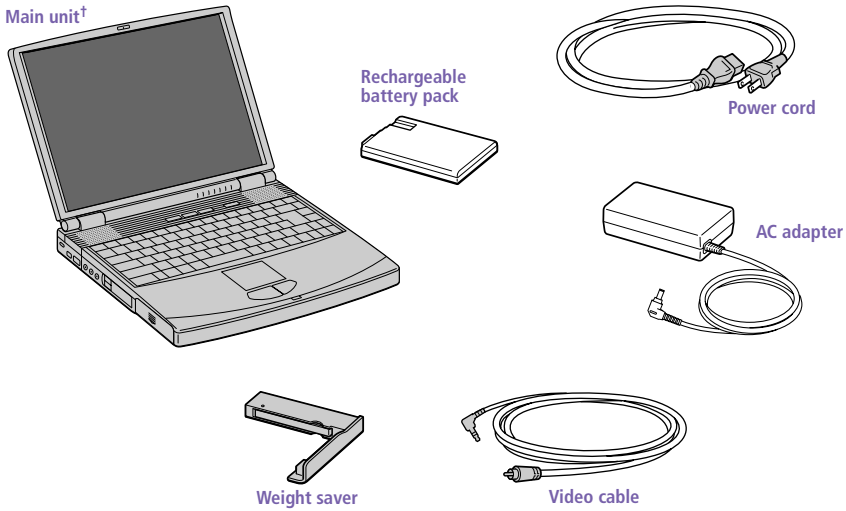
For a complete description of the specifications of your VAIO® notebook computer, see page 81.

- **Exceptional performance**: Your notebook includes a fast Intel® Pentium® III processor and a V.90 compatible modem.*
- **Portability:** The rechargeable battery pack provides hours of use without AC power.
- **Sony audio and video quality:** High-quality MPEG1/MPEG2 video, which supports full-screen display and enables you to take advantage of today's advanced multimedia applications, games, and entertainment software.
- **Multimedia features:** Enjoy the stereo speakers or use a headphone (not supplied) to listen to audio and video CDs.
- **Windows® 98 Second Edition:** Your system includes the latest operating system from Microsoft.
- **Communications:** Access popular online services, send e-mail, browse the Internet, and use fax features.
- **Digital Versatile Disc (DVD):** This new optical storage technology that provides increased storage capacity and a rich multimedia computing experience. DVD-ROM drives play both DVD-ROM and CD-ROM discs.

* Actual upload and download speeds may vary due to line conditions, ISP support, and government regulations.

Unpacking Your Notebook Computer

Remove the following hardware items from the box:



† The removable floppy disk drive is located in the multipurpose bay.

Manuals

- *Read Me First* contains Frequently Asked Questions, the most up-to-date information on using your computer, and software support information.
- The *VAIO® Notebook Computer User Guide* (this manual) contains information on how to get the most from your computer, find help, and solve common problems. It also includes product specifications.
- *The VAIO® Consumer Information Guide* contains ergonomic considerations and your computer's limited warranty statement.
- The *Microsoft® Windows® 98 Getting Started* manual explains how to use the basic features of the Windows® 98 operating system.

Recovery CDs

- System Recovery CD(s)
- Application Recovery CD(s)

Software CDs

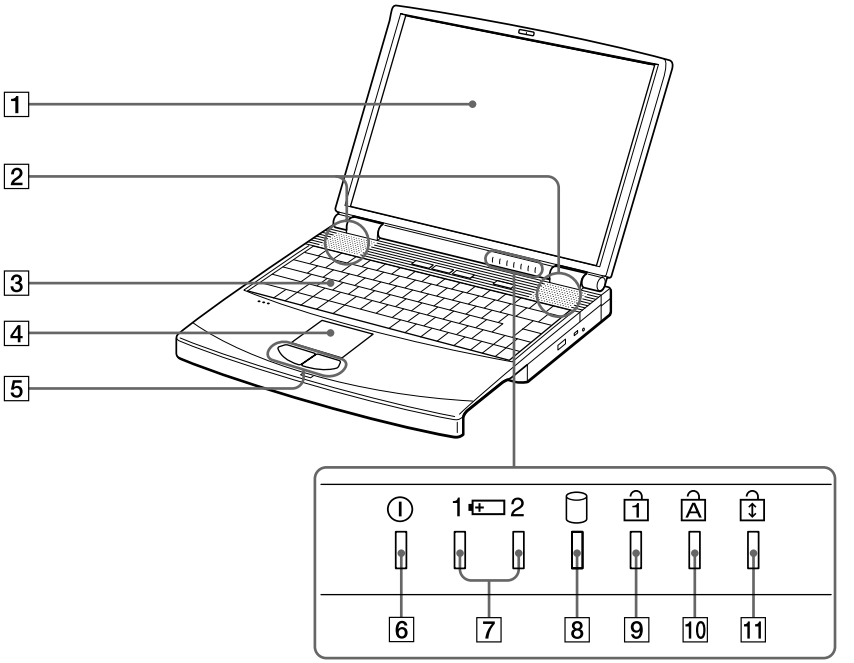
- Microsoft® Works Suite 99 (5 CD set)

Other

- Setting up your VAIO® Notebook Computer (poster)
- Packet containing special product offers

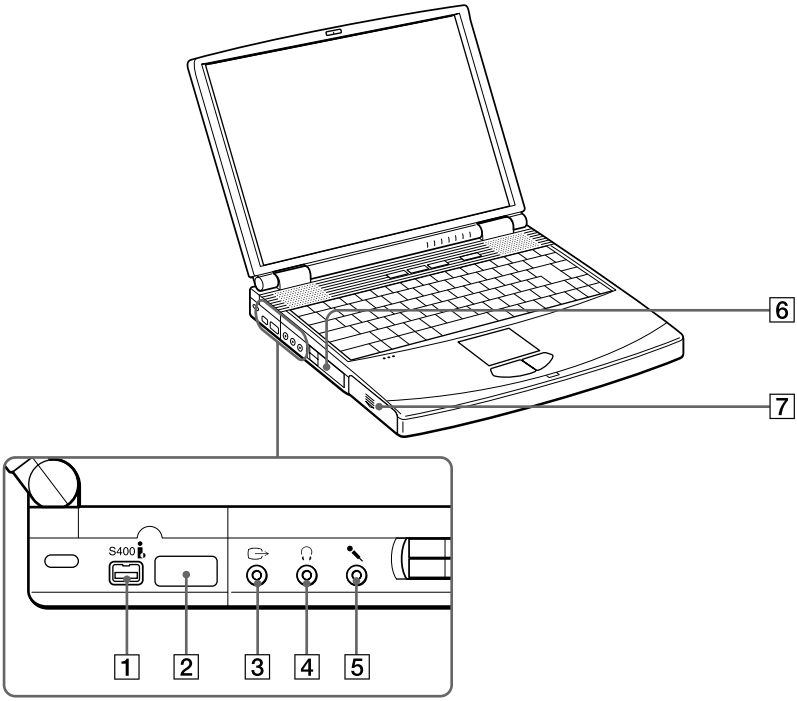
Locating Controls and Connectors

Front



1 LCD (Liquid Crystal Display) screen (page 20)
2 Speakers (pages 20, 53)
3 Keyboard (page 16)
4 Touchpad (page 22)
5 Left/right buttons (page 22)
6 Power indicator (page 10)
7 Battery 1 and 2 indicators (pages 10, 19)
8 Hard disk drive indicator (page 19)
9 Num Lock indicator (page 19)
10 Caps Lock indicator (page 19)
11 Scroll Lock indicator (page 19)

Left



1 S400 i.LINK® connector (page 56)

2 Infrared port (page 33)

3 Video out

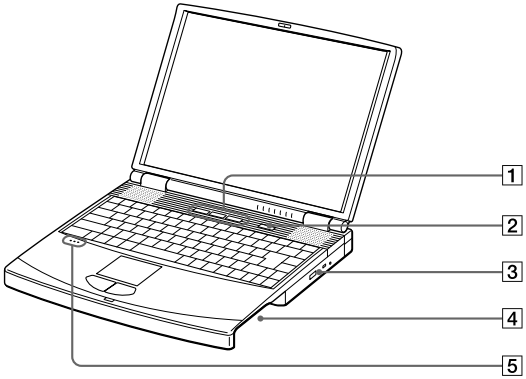
4 Headphone connector (pages 50, 53)

5 Microphone connector (pages 50, 54)

6 PC card slots (page 29)

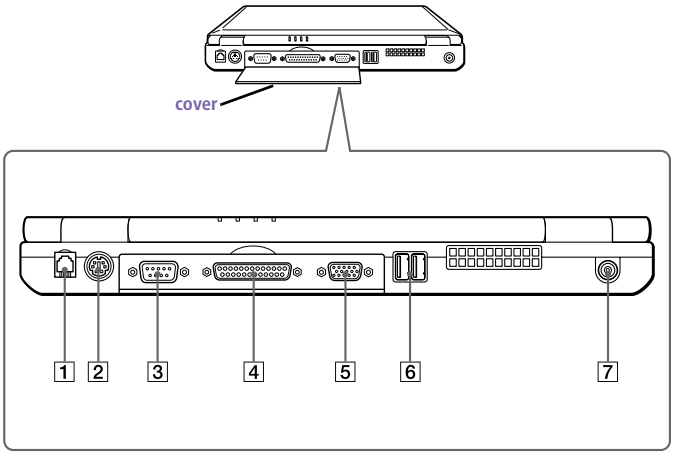
7 Battery bay (page 9)

Right



1. PPK buttons (see the online document *Customizing Your VAIO® Notebook Computer* for information on use)
2. Power button
3. DVD-ROM drive (page 25)
4. Multipurpose bay (pages 23, 37, 40)
5. Internal microphone

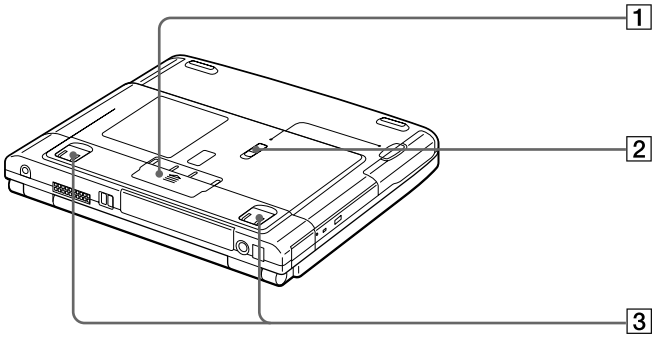
Back



1. Phone line jack (page 43)
2. / Mouse/Keyboard connector (page 52)
3. Serial connector (page 55)
4. Printer connector (page 48)
5. Monitor connector (page 49)
6. USB connectors (page 57)
7. DC In connector (page 8)

There is a ventilation slot located between the USB connector and the DC In connector. Do not cover the ventilation slot when your computer is on.

Bottom



1 Port replicator connector cover (pages 45, 47)

2 Multipurpose bay RELEASE lever (pages 39, 41)

3 Tilt stands

Connecting a Power Source

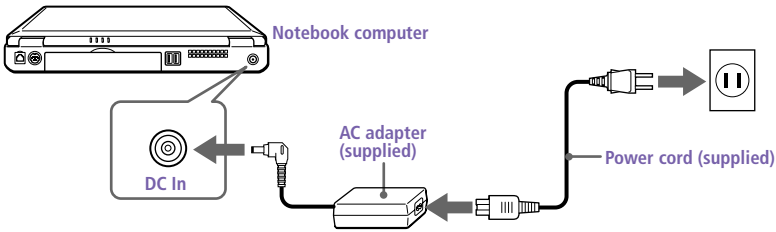
You can use either AC power or a rechargeable battery pack as a power source.

Using the AC Adapter

1 Plug the cable attached to the AC adapter into the DC In connector on the computer.

2 Plug one end of the power cord into the AC adapter.

3 Plug the other end of the power cord into an AC outlet.



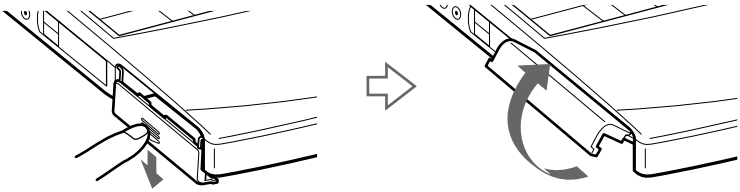
Using Battery Power

You can use one or two battery packs as a source of power. The second battery pack inserts into the multipurpose bay on the right side of the computer. (See “Using Power Saving Modes” on page 35.) Additional battery packs are available as a separate option.

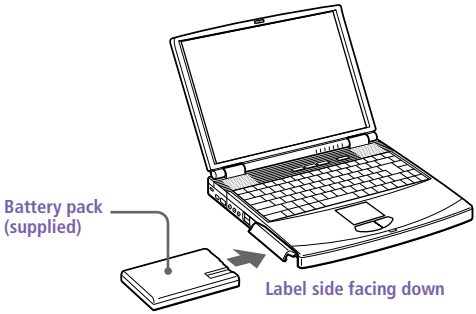
The battery pack that comes with your computer is not fully charged at the time of purchase. Follow the steps below to insert and charge the battery pack.

To insert the battery pack

1 Open the cover of the battery bay.



2 Insert the battery pack into the battery bay on the left side of the computer.



3 Close the cover of the battery bay until it clicks.

When attaching your computer to the port replicator, do not attempt to insert or remove the battery pack. Lifting and turning the computer with a port replicator attached could cause a temporary loss of power.

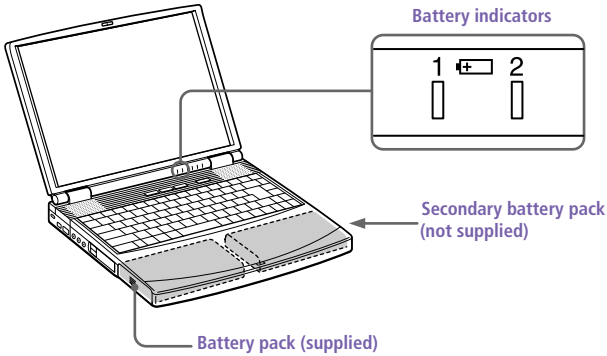
To charge the battery pack

1 Connect the AC adapter to the computer.

2 Insert the battery pack.

The computer automatically charges the battery (the battery indicator light flashes in a double-blink pattern as the battery charges). When the battery is 85 percent full, the battery indicator light turns off. This process takes approximately two hours. To charge the battery completely, continue charging for an additional hour. See "Displaying Detailed Battery Information" in the online document *Customizing Your VAIO® Notebook Computer* for information on checking the battery life.

There are two battery indicator lights on the computer:



Battery Indicator	*Meaning*
1	Indicates the status of the battery pack in the battery bay on the left side of the computer.
2	Indicates the status of the battery pack in the multipurpose bay on the right side of the computer.

Battery Indicator Light Status	*Meaning*
On	The computer is using battery power.
Single blink	The battery is running out of power.
Double blink	The battery is charging.
Off	The computer is using AC power.

When the battery power is running low, both the battery and power indicators blink.

When the computer is directly connected to AC power and has a battery pack in the battery bay, it uses power from the AC outlet.

See "Using a Second Battery Pack" on page 37 for information on installing and charging a battery pack in the multipurpose bay.

Keep the battery pack in the computer while it is directly connected to AC power. The battery pack continues to charge while you are using the computer.

If the battery level falls below 10%, you should either attach the AC adapter to recharge the battery or shut down your computer and insert a fully charged battery.

You can extend battery life by changing the power-management modes in the PowerPanel utility. See "Using Power Saving Modes" on page 35.

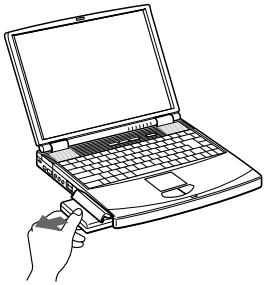
The battery pack supplied with your computer is a lithium ion battery and can be recharged at any time. Charging a partially discharged battery does not affect battery life.

The battery indicator light is on while you use the battery pack as a power source. When battery life is nearly depleted, the battery indicator starts flashing.

For some software applications and some peripheral devices, your computer may not enter System Hibernation mode when the battery life is low. To avoid loss of data when using battery power, you should save your data frequently and manually activate a power-management mode, such as System Suspend or System Hibernation.

To remove the battery pack

1. Open the cover of the battery bay.
2. Pull out the battery pack.

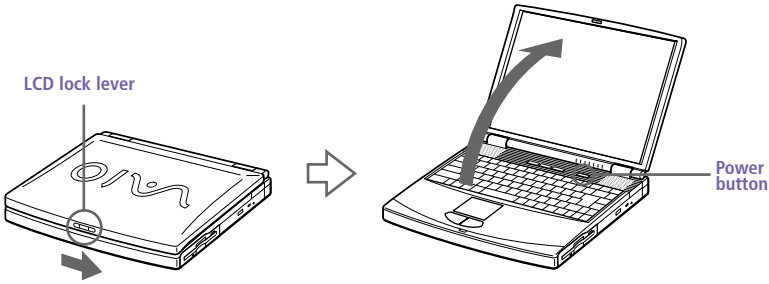


3. Close the cover of the battery bay.

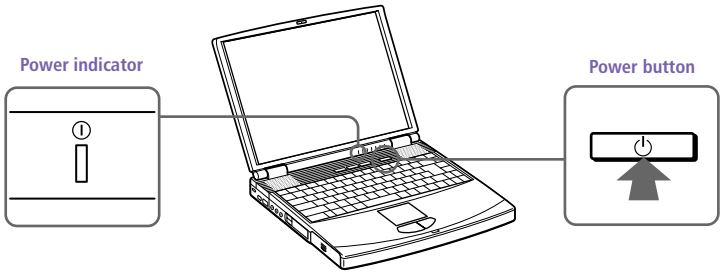
! **You may lose data if you remove the battery pack while the computer is on and not connected to the AC adapter or if you remove the battery while the computer is in System Suspend mode.**

Starting Your Computer

1 Slide the LCD lock lever in the direction of the arrow, and lift the cover.



2 Press the power button on top of the computer until the green power indicator light turns on.



If you hold the power button in the On position for more than four seconds, the computer turns off.

3 If necessary, adjust the brightness controls for the LCD display. To decrease the brightness, press Fn+F5 and then the down or left arrow key. To increase the brightness, press Fn+F5 and then the up or right arrow key.

Shutting Down Your Computer

! **To avoid potential loss of data, follow these steps to shut down your computer.**

1 Click the Start button on the Windows® 98 taskbar.

2 Click Shut Down at the bottom of the Start menu to display the Shut Down Windows dialog box.

3 Select Shut down.

4 Click OK.

Respond to any prompts warning you to save documents.

5 Wait for your computer to turn off automatically. The power indicator (green) turns off.

6 Turn off any peripherals connected to your computer.

If you are unable to shut down your computer using the steps described above, press the Ctrl+Alt+Delete keys at the same time to restart the computer. If you are unable to restart the computer in this way, you can press the power button and hold it for four seconds. This operation may result in data loss.

During a period of inactivity, you can conserve battery life by using System Suspend mode. See "Controlling Power Management" in the online document *Customizing Your VAIO® Notebook Computer.*

Configuring Microsoft® Windows® 98 Second Edition

The first time you turn on your computer, you need to complete a few steps to configure the Microsoft® Windows® 98 Second Edition operating system that is already installed.

You must configure Windows 98 before you can use the computer.

The on-screen instructions guide you through the configuration process. The following is an overview of the process.

1 Entering information:

- Enter your name.
- Read and accept the License Agreement.
- Enter the product ID number located on the Certificate of Authenticity on the cover of the Microsoft Windows 98 *Getting Started* manual.

2 Windows 98 setup:

Click the Finish button on the Windows 98 Setup Wizard screen.

3 Selecting your computer settings:

If necessary, change the Time Zone, Date and Time on the Date/Time Properties screen.

4 Registering your computer:

For details on registering your computer, see “Registering Your Computer” on page 15. You may sign up for Internet access with a Sony preferred Internet Service Provider.

Registering Your Computer

You can take advantage of Sony's commitment to quality customer support and receive the following benefits by registering your computer with Sony.

- **Sony Customer Support –** Talk to a Support Representative to troubleshoot problems you may be having with your computer.
- **Extended Limited Warranty –** Protect your investment. Extend your Warranty nine months for a total of 12 months from the original date of purchase when you register your computer.
- **Express service –** Provides convenient resolution of problems.

If you have not already registered, follow these steps to use your notebook computer's online registration service.

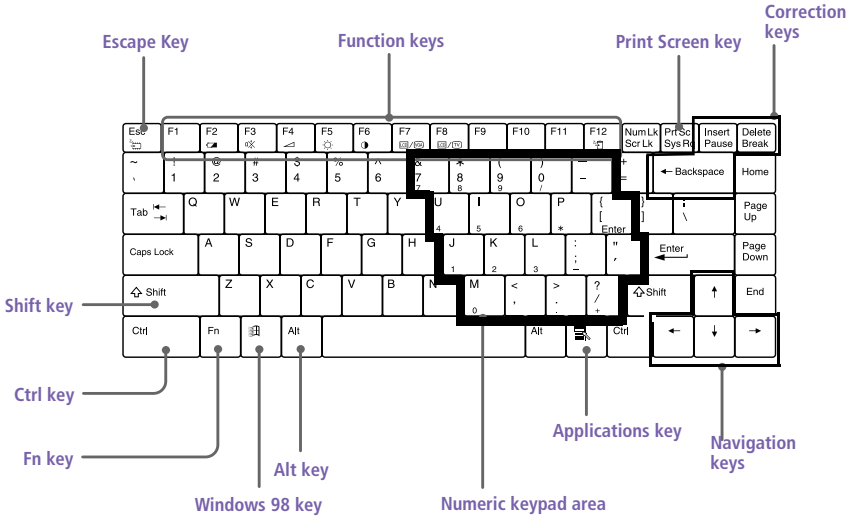
> You must connect your phone line before using any online services, including the online registration service. See "Connecting a Phone Line" on page 43.

1. Click the Sony VAIO Registration icon on the VAIO desktop.
2. Enter the information requested on the first online registration form. Press the Tab key to move from box to box.
3. Click the Next button to advance to the next form.
4. Complete the remaining forms by clicking the Next button each time you complete a form.

The computer automatically transfers your registration information using your built-in modem and a toll-free telephone number.

Using the Keyboard

Your keyboard is very similar to a typewriter's, but the keyboard has additional keys that perform specific computer-related tasks.



Key	Description
Numeric keypad area	Contains the keys found on a typical calculator. Use the numeric keypad area to type numbers or to perform mathematical calculations such as addition and subtraction. Note that you must press the Num Lock key to activate the numeric keypad. (When you do so, the Num Lock light will be on.)
Navigation keys	Several keys are devoted to moving the cursor on the screen.
Correction keys	The Insert, Back Space, and Delete keys enable you to make corrections in your documents.
Function keys	The twelve function keys along the top of the keyboard are used to perform designated tasks. For example, in many applications, F1 is the Help key. The task associated with each function key may vary from one application to the next.
Escape key	The Esc (Escape) key is used to cancel commands.

Key	*Description*
Print Screen key	The Print Screen key takes an electronic snapshot of the screen and places it in the Windows Clipboard. You can then paste the screen shot into a document and print it.
Operator keys	Several keys are always used with at least one other key: Ctrl, Alt, and Shift. When held down with another key, the Ctrl (Control) and Alt (Alternate) keys offer another way to give commands. For example, in many applications, instead of choosing the Save command from a menu, you can hold down Ctrl and press S (referred to as Ctrl+S). The Shift key operates the same way as on a typewriter; it is used to produce capital letters or special symbols such as @ and $.
Windows 98 key	The key with the Windows logo displays the Windows 98 Start menu; it is the equivalent of clicking the Start button on the taskbar. See “Combinations and Functions with the Windows 98 Key” on page 18.
Fn key	The Fn key is used in combination with other keys to issue commands. See “Combinations and Functions with the Fn Key” on page 20.
Applications key	The Applications key displays a shortcut menu of context-sensitive choices. Pressing this key is the equivalent of clicking the right mouse button.

Combinations and Functions with the Windows 98 Key

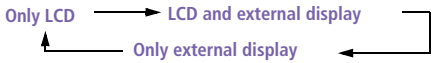
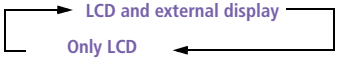
Combination	Function
+ F1	Displays Windows Help.
+ Tab	Switches the selected button on the taskbar.
+ E	Displays Windows Explorer.
+ F	Displays the Windows Find: All Files window to find a file or folder. This is the equivalent of selecting Find and then Files or Folders from the Start menu.
+ Ctrl + F	Displays the Windows Find: Computer window where you can locate other computers. This is the equivalent of selecting Find and then Computer from the Start menu.
+ M	Minimizes all displayed windows.
Shift + + M	Returns all minimized windows to their previous size.
+ R	Displays the Run window. This is the equivalent of selecting Run from the Start menu.
Fn + + Insert	Displays the Properties window. This is the equivalent of double-clicking the System icon in the Control Panel.

Indicators

Indicator	Function
Power ⏻	Light is green when the power to the computer is turned on. Light is red in System Idle mode, and flashes red in System Suspend mode. The light turns off when the computer is in System Hibernation mode or powered off.
Battery 1 1 🔋	Indicates the status of the battery inserted in the battery bay on the left side of the computer.
Battery 2 🔋 2	Indicates the status of the battery inserted in the multipurpose bay on the right side of the computer.
Hard disk	Lights when data is being read from or written to the hard drive. Do not enter System Suspend mode or turn off the computer when this indicator light is on.

Light	On	Off
Num Lock	The number keys in the numeric keypad are active.	The alphanumeric character keys in the keypad area are active.
Caps Lock	The letters appear in uppercase as you type. The Shift key lowers the case of typed letters when Caps Lock is on.	Letters appear in lower case as you type (unless you hold down the Shift key).
Scroll Lock	The screen scrolls differently. (Exactly how it scrolls depends on the specific application. It has no effect in many applications.)	Information moves across the display normally.

Combinations and Functions with the Fn Key

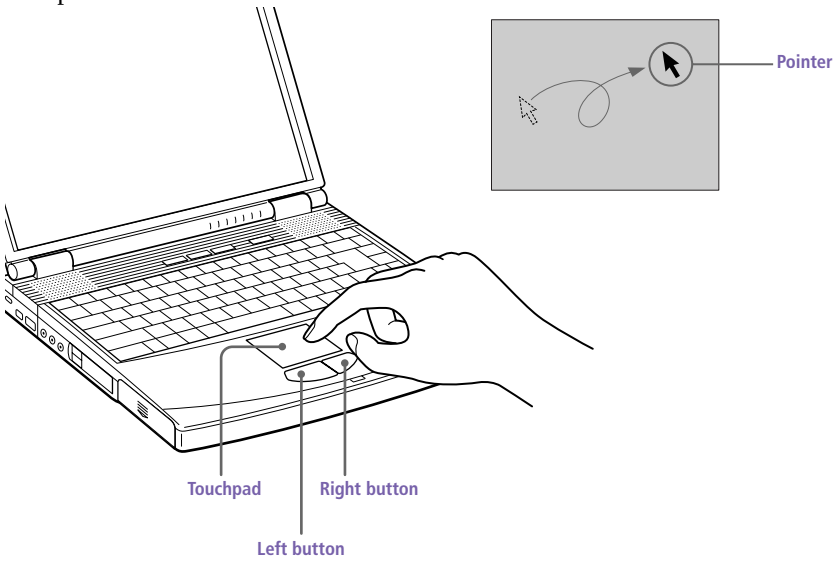
Combinations/ Feature	Function
Fn+ (ESC) System Suspend	Puts the system into System Suspend mode, a power-management state. To return the system to the active state, press any key or press the power button on your computer.
Fn+ (F2) Display power source status	Displays the power source status, as in the example below: Using AC power Charging a battery pack
Fn+ (F3) Mute On / Off	Toggles the built-in speaker off and on.
Fn+ (F4) Speaker volume	Adjusts the built-in speaker volume. To increase volume, press Fn+F4, then ↑ or →. To decrease volume, press Fn+F4, then ↓ or ←.
Fn+ (F5) Brightness control	Adjusts the brightness of the LCD. To increase light intensity, press Fn+F5 and then ↑ or →. To decrease light intensity, press Fn+F5 and then ↓ or ←.
Fn+ (F6) Contrast control	Fn +F6: not available on this model
Fn+ LCD / VGA (F7) Switch to the external monitor / LCD	Toggles through the LCD, external display (connected to the Monitor connector) and both LCD and external display. 
Fn+ LCD only / TV (F8) Control TV out	Toggles between LCD-only and dual LCD / TV display modes. 

Combinations/ Feature	*Function*
Fn+ (F12) System Hibernation	Provides for the lowest level of power consumption. When you execute this command, the state of the system and state of the peripheral devices are written to the hard disk and the system power is turned off. To return the system to its original state, use the power button to turn on power.
Fn+D Video standby	Turns off the LCD to save power. To turn the LCD back on, press any key.
Fn+F Change the display size	Zooms the display size in or out when the display is set to a low resolution.
Fn+S System Idle	Puts the system into System Idle mode, a power-management state. To return the system to the active state, press any key.

Some functions are not available until Windows launches.

Using the Touchpad

The keyboard contains a cursor-pointing device called a touchpad. You can point to, select, drag, and scroll objects on the screen using the built-in touchpad.



Action	Description
Point	Slide one finger on the touchpad to place the pointer on an item or object.
Click	Press the left button once.
Double-click	Press the left button twice.
Right-click	Press the right button once. In many applications, this action displays a shortcut menu of context-sensitive choices.
Drag	Slide one finger while pressing the left button.
Scroll	Move your finger along the right edge of the touchpad to scroll vertically. Move your finger along the bottom to scroll horizontally. (The scroll function is available only with applications that support a touchpad scroll feature.)

See Mouse Help for information on touchpad features, such as clicking both buttons simultaneously, adjusting touchpad speed, and Easy Launcher functions. To access Mouse Help, click the Start button, select Settings, and then Control Panel. Click the Mouse icon in the Control Panel and click the Help button.

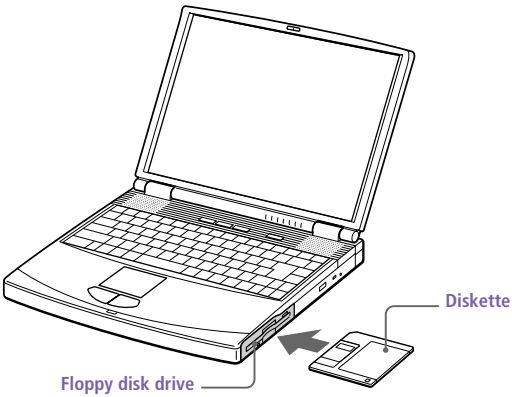
Using the Floppy Disk Drive

The computer comes with the floppy disk drive in the multipurpose bay.

To insert a diskette

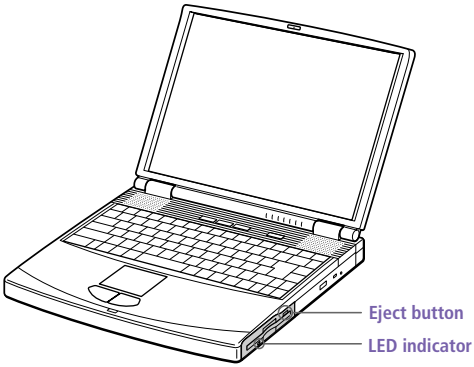
1 Hold the diskette with the label side facing up.

2 Gently push the diskette into the drive until it clicks into place.



To remove a diskette

❑ When you finish using the diskette, wait until the LED indicator light turns off and then press the Eject button to remove the diskette.

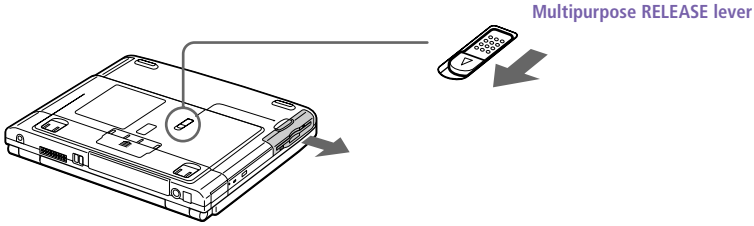


Do not press the Eject button when the LED indicator is turned on. Otherwise, data may be lost.

To remove the floppy disk drive

1 Turn off the computer.

2 There is a RELEASE lever on the bottom of the computer. Slide this lever in the direction of the arrow.



3 Slide the drive out of the multipurpose bay.

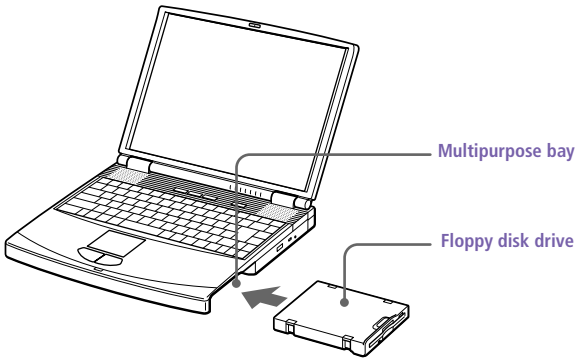
4 Insert the weight saver. See “Using the Weight Saver” on page 40.

To reinsert the floppy disk drive

1 Turn off the computer.

2 If another device is in the multipurpose bay, remove the device. See “To remove the floppy disk drive” on page 24 or “To remove the second battery pack” on page 39.

3 Insert the floppy disk drive into the multipurpose bay with the VAIO label facing up. Continue pushing the drive into the bay until the RELEASE lever locks into place.



Using the DVD-ROM

Your computer comes with a DVD-ROM drive. The DVD-ROM drive plays both DVD-ROMs and CD-ROMs.

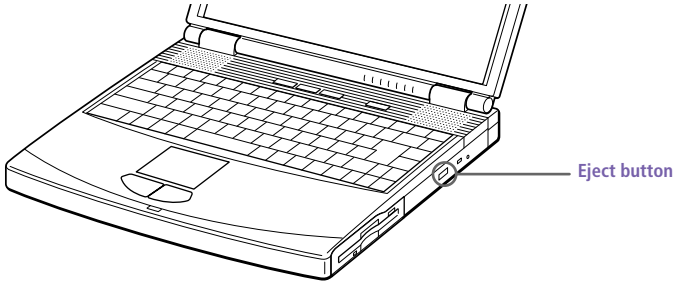
To insert a disc

1 Turn on the computer.

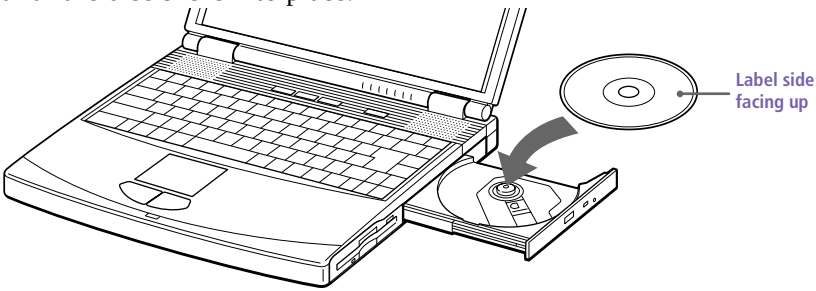
When the computer is in System Suspend or System Hibernation mode, you cannot insert a disc. See "Controlling Power Management" in the online document *Customizing Your VAIO® Notebook Computer* for more information on System Suspend and System Hibernation modes.

2 Press the Eject button to open the DVD-ROM drive.

The tray slides out.



3 Place a DVD-ROM / CD-ROM in the tray with the label side facing up. For DVD-ROMs, which can be played on both sides, the side of the disc facing up is the side that plays. Push the disc onto the hub until the disc clicks into place.



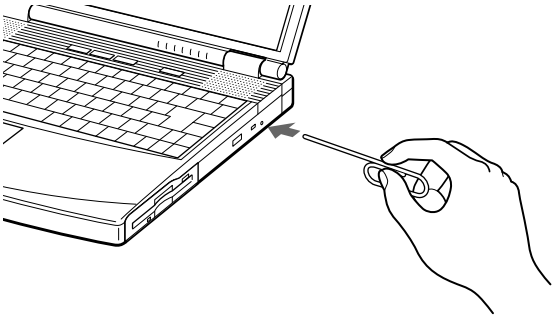
4 Close the tray by pushing it gently.

Be sure to seat the disc firmly over the hub fingers. If you do not seat the disc firmly, you could damage your DVD-ROM drive and you may not be able to open the tray.

When you finish using a disc, wait until the LED indicator light turns off, then press the Eject button to remove the disc.

When the computer is in System Suspend or System Hibernation mode, you cannot remove a disc. See "Controlling Power Management" in the online document *Customizing Your VAIO® Notebook Computer* for more information about System Suspend and System Hibernation modes.

If the disc does not come out when you press the Eject button, turn off the computer and insert a thin, pointed object into the manual eject hole.



To play DVD-ROMs

To achieve optimum performance when playing DVD-ROMs, you should use the following recommendations: Your computer should not be connected to the port replicator while playing DVD movies or using DVD applications. Close any open applications before playing a DVD movie. The DVD player automatically adjusts the screen properties when you play a DVD movie. Depending on the display setup properties you have selected, you may need to use the Fn + F command to expand the movie to full-screen size.

When playing DVD movies on battery power, set the power management profile to DVD. With other profiles, the movies are choppy. As an alternative, you can set the power management profile to Automatic Profile Selection, which will cause the DVD profile to be selected automatically whenever you insert a DVD. See "Controlling Power Management" in the online document *Customizing Your VAIO® Notebook Computer* for information on how to set the power-management profile.

Playing a DVD

- You can play DVDs using a DVD-ROM drive and the Media Bar software. See the online manual that came with the Media Bar software for details.
- While playing a DVD, the display mode is 1024 x 768 dots and the number of colors is set to 256. This improves play performance.

! **Some discs recorded at 20 or 24 bits may produce noise while playing. If you have audio devices connected, this may cause damage to your hearing and the speakers. Reduce the volume before playing such discs.**

! **You cannot switch between LCD and TV if you press Fn+F8 when a DVD is inserted in the DVD-ROM drive.**

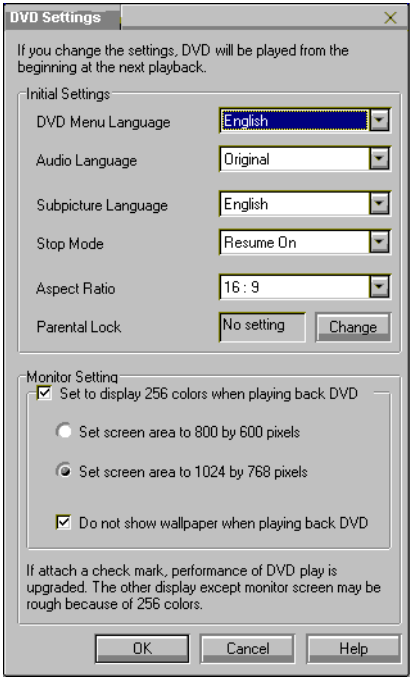
To minimize the play mode window, see "To play a DVD in Normal Display Mode" on page 27.

If you have connected a TV, follow the instructions in "Selecting the Display Mode" in the online document *Customizing Your VAIO® Notebook Computer.*

To play a DVD in Normal Display Mode

To play a DVD in a display mode of 1024 x 768 (16 bits):

1. Click Stop in the DVD Player window. If you have maximized the DVD player window, right-click the window to display the pop-up menu. Choose "Show Control Panel" to display the DVD player window forward.
2. Click Setting to display the DVD Setup window.


DVD Settings
If you change the settings, DVD will be played from the beginning at the next playback.
Initial Settings
DVD Menu Language
English
Audio Language
Original
Subpicture Language
English
Stop Mode
Resume On
Aspect Ratio
16 : 9
Parental Lock
No setting
Change
Monitor Setting
Set to display 256 colors when playing back DVD
Set screen area to 800 by 600 pixels
Set screen area to 1024 by 768 pixels
Do not show wallpaper when playing back DVD
If attach a check mark, performance of DVD play is upgraded. The other display except monitor screen may be rough because of 256 colors.
OK
Cancel
Help

3 Remove the check from "Set to display 256 colors when playing back a DVD."

4 Click OK to confirm the setting.

To display wallpaper while playing a DVD

1 Follow the instructions in "To play a DVD in Normal Display Mode" on page 27, or

2 Follow step 1 and step 2 of "To play a DVD in Normal Display Mode" on page 27, then remove the check from the check box labeled "Do not show wallpaper when playing back DVD."

Using PC Cards

Your computer includes two PC card slots. PC cards allow you to connect portable external devices such as another hard disk drive, or to connect a network.

The PC card slots can accommodate two Type I or two Type II PC cards, or one Type III PC card. These slots are compatible with Card Bus.

Some PC cards may require that you disable idle devices when using the PC card. You can use Sony Notebook Setup to disable devices. See "Displaying the Sony Notebook Setup Screen" in the online document *Customizing Your VAIO® Notebook Computer* for details.

Be sure to use the most recent software driver provided by the PC card manufacturer.

If an "!" mark appears on the Device Manager tab in the System Properties dialog box, remove the software driver and then reinstall it.

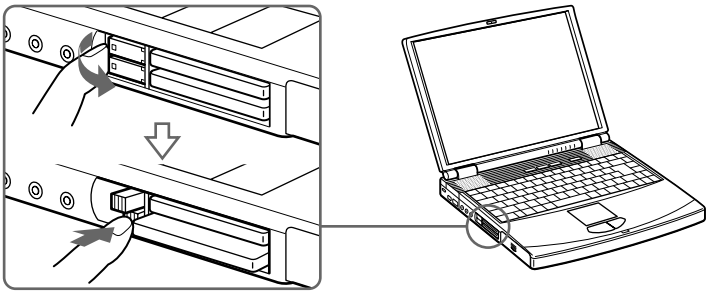
You may not be able to use some PC cards or some functions of the PC card with this computer.

To insert a PC card

Use the lower slot for Type III PC cards.

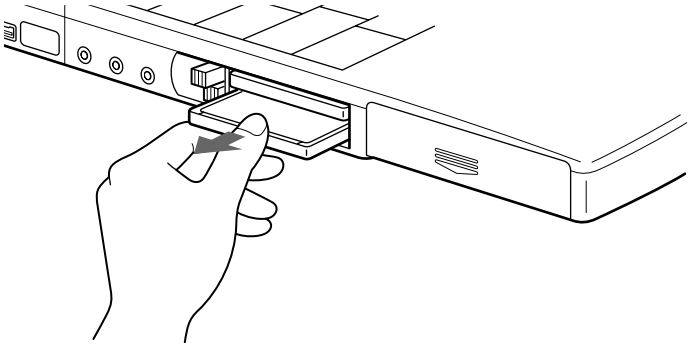
You do not need to shut down the computer before inserting or removing a PC card.

1 Pull the PC card release button out from the computer and push it in toward the computer.

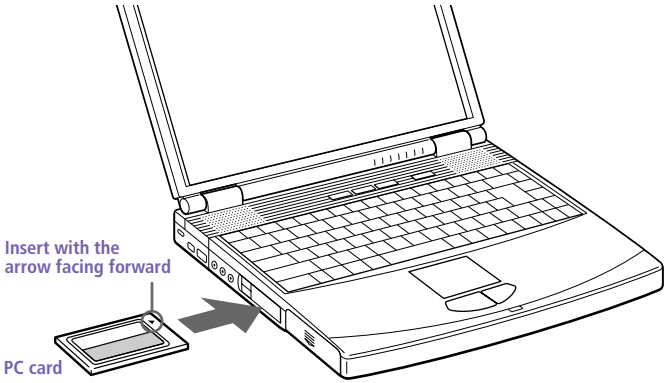


2 Remove the PC card slot protector.

When you use a Type III PC card, you need to remove both the top and bottom PC card slot protectors.



3 Insert the PC card into the PC card slot, front label facing up. Gently push the card into the slot until the card is fixed into the connector. The release button comes out.



Do not force a card into the slot as this may damage the connector pins. If you have difficulty inserting a card, check that you are inserting the card with the correct orientation. See the manual that came with your PC card for more information on use.

For some PC cards, if you alternate between normal power operation and the System Suspend or System Hibernation power-management modes while the card is inserted, you may find that a device connected to your system is not recognized. Reboot your system to correct the problem.

To remove a PC card

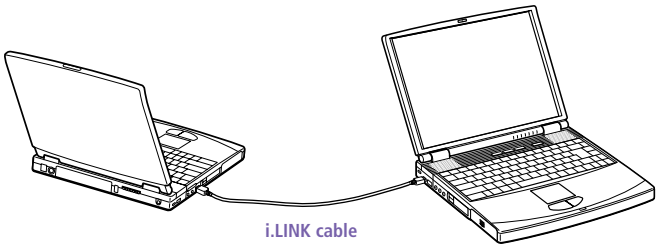
1. Close any applications that are using the PC card.
2. Click the PC card icon in the taskbar and close the card window.
3. Pull the PC card release button up and press it in toward the computer.
4. Gently grasp the card and pull it out.
5. Insert the PC card slot protector back into the empty slot.

Using Smart Connect

The preinstalled Smart Connect software allows you to use an i.LINK cable (not supplied) to connect your VAIO Notebook Computer to another VAIO computer that also has Smart Connect. You can then use one computer to copy, delete, and edit files on the other computer. You can also print from a printer attached to either computer.

When you use Smart Connect to connect two VAIO computers, you must assign each computer a unique name by which it can be identified when the two computers are networked.

See the Smart Connect online help for more information.



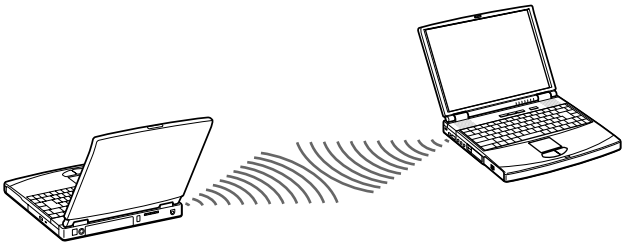
i.LINK cables compatible with your VAIO notebook computer include cables with the following part numbers: VMC-IL4415 (a 1.5-meter cable with a 4-pin connector at each end), VMC-IL4435 (a 3.5-meter cable with a 4-pin connector at each end), VMC-IL4615 (a 1.5 meter-cable with a 4-pin connector at one end and a 6-pin connector at the other), and VMC-IL4635 (a 3.5-meter cable with a 4-pin connector at one end and a 6-pin connector at the other).

Using Infrared Communication Devices

Your computer includes an infrared port, located on the left side. You can use this port to communicate with other infrared-equipped devices with compatible protocols, such as a digital still camera or other computers.

To use infrared communication with another computer

Align the infrared ports on the two computers so that they are in a direct line.



Infrared communication capability can be turned on and off. By default, it is not enabled when your system is shipped. To enable infrared use, click the infrared icon in the Windows Control Panel and select the Enable infrared communication check box on the Options tab.

You can disable infrared communication when you are not using it to conserve battery life.

Use the infrared icon in the Windows Control Panel to enable and disable infrared communication. Do not use the icon in the taskbar.

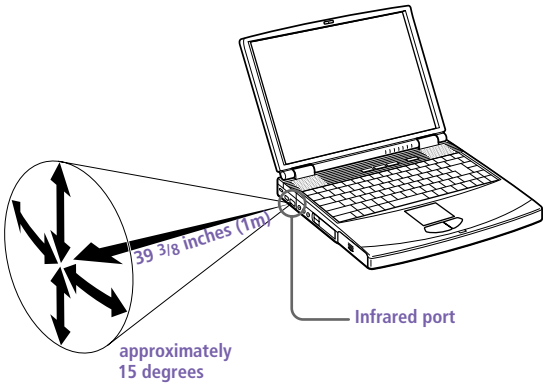
Check the Status tag of the Infrared Monitor in the Windows Control Panel to determine if the infrared device is detected.

If the two devices are too far apart or too close together, data transfer may be interrupted or there may be noise in the transmission.

Do not cover the infrared ports with your hand or any other object.

Avoid direct sunlight, fluorescent light, or flashing incandescent light near the infrared ports.

The active area of infrared transmission extends about 39 3/8 inches (1 meter) with a radius of approximately 15 degrees.



Using Power Saving Modes

When you use a battery as the source of power for your computer, you can take advantage of power management settings to conserve battery life. In addition to the normal operating mode, which allows you to turn off specific devices, your computer has three distinct power saving modes: System Idle, System Suspend, and System Hibernation. When using battery power, you should be aware that the computer automatically enters System Hibernation mode when the remaining battery charge drops below 5 percent, regardless of the power management setting you select.

If the battery level falls below 10 percent, you should either attach the AC adapter to recharge the battery or shut down your computer and insert a fully charged battery.

Normal Mode

This is the normal state of your computer when it is in use. The green power indicator light is on in this mode. To save power, you can turn off a specific device such as the LCD or the hard disk.

System Idle Mode

This mode is convenient if you do not need to use your computer for a brief period. The hard disk and video display enter a low power state, and the CPU clock and processor stop. The power indicator light is tan in this mode.

To activate System Idle mode

Press Fn+S, or use the PowerPanel utility.

To return to normal mode

Press any key. Note that resuming from System Idle using the touchpad or mouse is not possible. You must press a key, a PPK (see “Starting Your Favorite Software with Programmable Power Key (PPK) Setup” in the online document *Customizing Your VAIO® Notebook Computer*), or the power button.

System Suspend Mode

The computer saves the current state of the system in RAM and switches off power to the CPU. The tan power indicator light flashes in this mode.

To activate System Suspend mode

Press Fn+Esc, or press the power button and release it immediately. You can also use the PowerPanel utility to enter System Suspend mode.

To return to normal mode

Press any key.

System Hibernation Mode

The state of the system is saved on the hard drive and power is turned off. The power indicator light is off in this mode.

To activate System Hibernation mode

Press Fn+F12. The "Save to Disk Manager" screen appears, and then the computer enters System Hibernation mode. You can also use the PowerPanel utility to enter System Hibernation mode.

To return to normal mode

Turn on the computer by pressing the power button. The computer returns to its previous state.

When returning from System Hibernation mode, the system status stored on the hard disk is erased and the computer starts normally if you press the power button and hold for more than four seconds.

- Time to return to normal mode

  System Idle requires less time than System Suspend, and System Suspend requires less time than System Hibernation.

- Power consumption

  System Idle uses more power than System Suspend, and System Suspend uses more power than System Hibernation.

Using a Second Battery Pack

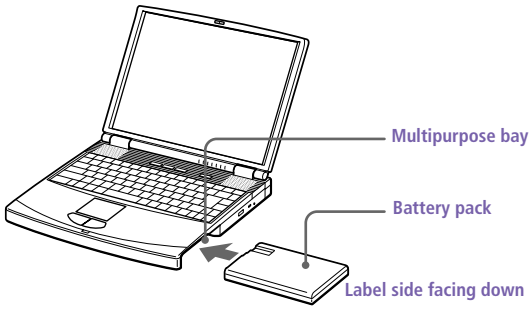
You can purchase a second rechargeable battery pack. With two battery packs, you can extend the time that you use your computer with battery power. When using two battery packs, the battery pack you insert first charges first. The battery pack you insert second charges when the first battery pack is 85 percent full. You can monitor which battery pack is charging by observing the battery indicator lights.

To insert a second battery pack

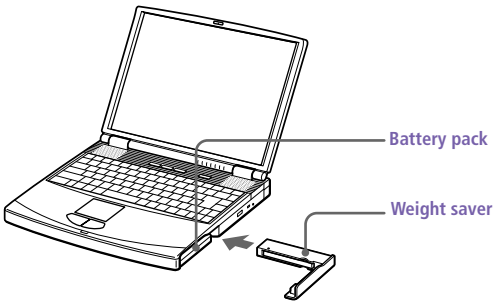
1 If another device is in the multipurpose bay, remove the device. See "To remove the floppy disk drive" on page 24.

2 Insert the battery pack into the multipurpose bay.

If the battery is being used, the battery 2 indicator light turns on.

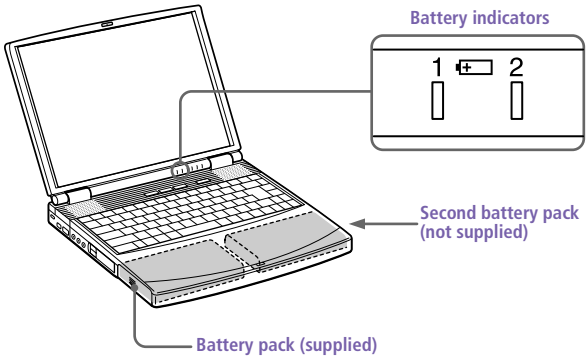


3 Attach the weight saver to the computer to stabilize the battery pack. There is a RELEASE lever on the bottom of the weight saver. Slide the lever toward the front of the computer to lock the weight saver. See also "Using the Weight Saver" on page 40.



To charge the second battery pack

Keep the battery pack in the computer while it is connected to AC power. The battery indicator flashes while the battery is charging. See also "To charge the battery pack" on page 10 for more information.

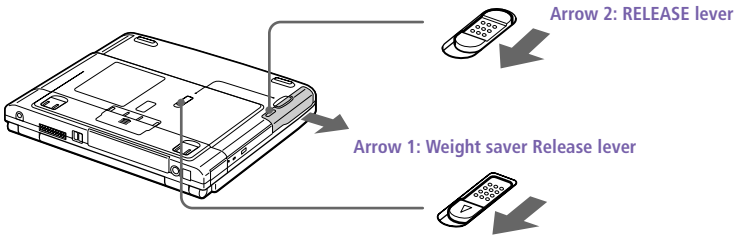


To determine the amount of time the battery lasts, see "Displaying Battery Information" in the online document *Customizing Your VAIO® Notebook Computer.*

To remove the second battery pack

If you attach two battery packs, you can remove either of them without shutting down the computer. When removing one battery pack, make sure that the other battery pack's indicator light is on. If the indicator light of the battery pack you are removing is on, right-click the battery icon on the task tray and click the "Switch discharge battery" option.

1 There is a Release lever on the bottom of the weight saver. To remove the battery pack, slide this lever in the direction of arrow 1, then slide the RELEASE lever on the bottom of the computer in the direction of arrow 2.



2 Remove the weight saver, and then pull out the battery pack.

3 Reinsert the weight saver. See "Using the Weight Saver" on page 40.

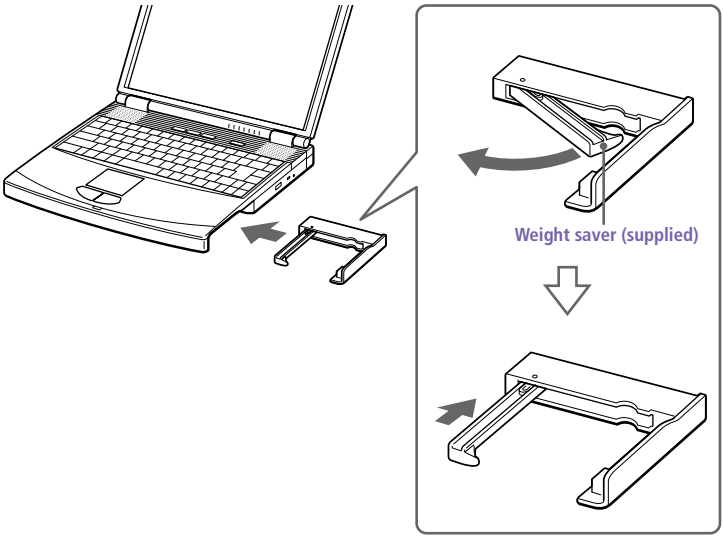
Using the Weight Saver

The weight saver protects the multipurpose bay when it is empty.

To attach the weight saver

1 If another device is in the multipurpose bay, remove the device. See “To remove the floppy disk drive” on page 24 or “To remove the second battery pack” on page 39.

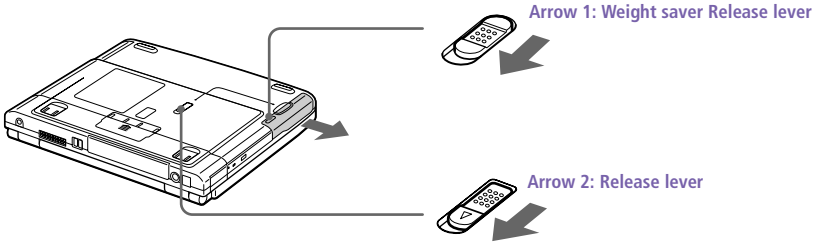
2 Fold out the hinged arm of the weight saver and then push on the hinged arm to lock it into place. Slide the weight saver in the direction of the arrow until it clicks.



3 Manually lock the weight saver’s Release lever.

To remove the Weight Saver

1 There is a release lever on the bottom of the weight saver. To remove the weight saver, slide this lever in the direction of arrow 1, then slide the Release lever on the bottom of the computer in the direction of arrow 2.



2 After removing the weight saver, pull out the weight saver's hinged arm and fold it into the weight saver.

Connecting Peripheral Devices

You can add functionality to your computer by connecting any of these peripherals:

- Phone line (page 43)
- Port replicator (page 44)
- Printer (page 48)
- External display (page 49)
- External mouse or keyboard (page 52)
- External speakers (page 53)
- External microphone (page 54)
- Digital still camera or other serial device (page 55)
- Digital video camera recorder (page 56)
- Universal Serial Bus (USB) device (page 57)

Before you connect peripherals, turn off the computer and all peripherals.

You do not need to turn off your computer to connect USB devices.

Connect the power cord only after connecting all cables.

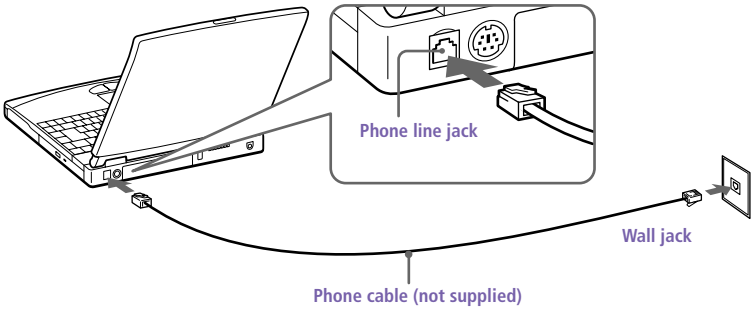
Turn on the computer only after turning on all peripherals.

Connecting a Phone Line

You need to connect a phone line to take advantage of online services and the Internet.

In order to register your Sony VAIO notebook computer, register your software online, and use Sony Customer Support, you must connect to a phone line. You must register your computer to receive the extended warranty.

1 Plug one end of the phone cable into the phone line jack on the computer.

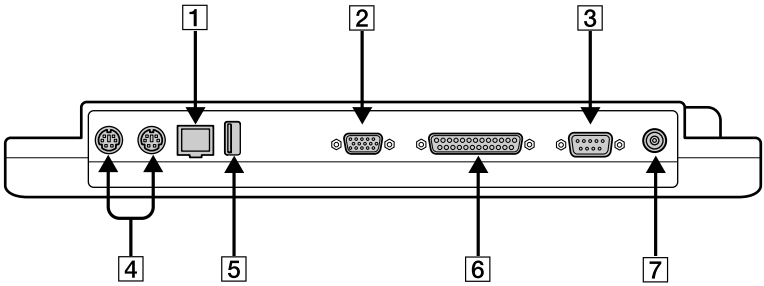


2 Plug the other end into the wall jack.

Your computer does not work with party lines, cannot be connected to a coin-operated telephone, and may not work with multiple phone lines or a private branch exchange (PBX). Some of these connections may result in excess electrical current and could cause a malfunction in the internal modem.

Connecting the Port Replicator

Your notebook computer supports the use of an optional port replicator. Attaching a port replicator enables you to connect additional peripherals to your computer.



1 Network (Ethernet)

2 Monitor (page 49)

3 Serial (page 55)

4 / Mouse/Keyboard (page 52)

5 USB (page 57)

6 Printer (page 48)

7 DC In (page 8)

The port replicator can be powered only with an AC power adapter. Do not remove the AC adapter from the port replicator or the AC outlet while using the port replicator; this may cause data damage or hardware malfunctions.

When you attach your computer to the port replicator for the first time, the installation of the network driver starts automatically.

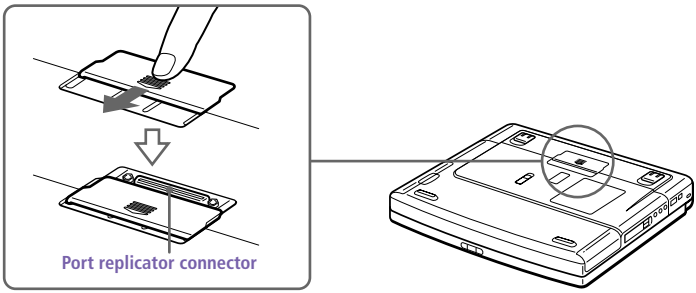
To attach your computer to the port replicator

To supply power to your computer while it is connected to the port replicator, you can connect the AC adapter directly to the port replicator.

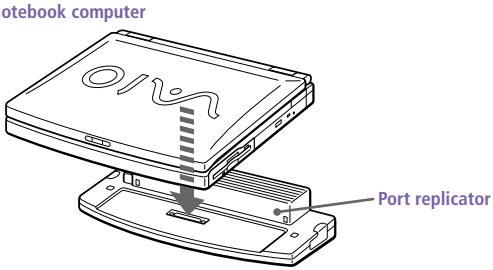
When attaching your computer to the port replicator, do not attempt to insert or remove the battery pack. Lifting and turning the computer with an attached port replicator could cause a temporary loss of power.

1 Turn off your computer and disconnect all peripherals.

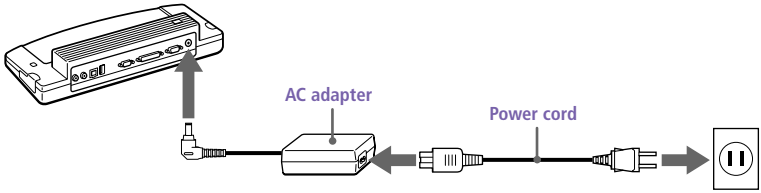
2 On the bottom of the computer, slide the port replicator connector cover open.



3 Attach the bottom of the computer to the port replicator connector until it clicks.

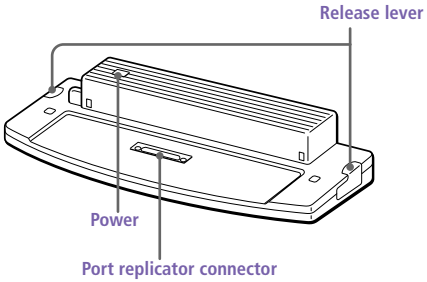


4 Plug the cable attached to the AC adapter into the DC IN connector on the port replicator. Plug the power cord into the AC adapter and an AC outlet.



Use the AC adapter that comes with your computer or the optional Sony PCGA-ACX1 adapter.

The power indicator light turns green.

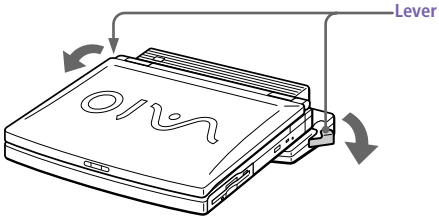


5 Turn on the computer.

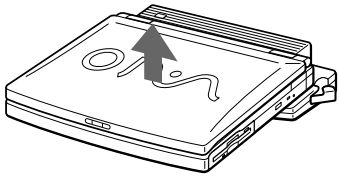
To remove your computer from the port replicator when the power is off

1 Turn off your computer and the connected peripherals.

2 Pull the levers on each side of the port replicator to disengage the computer from the port replicator.



3 Lift the computer away from the port replicator.



4 Close the port replicator connector cover on the bottom of your computer.

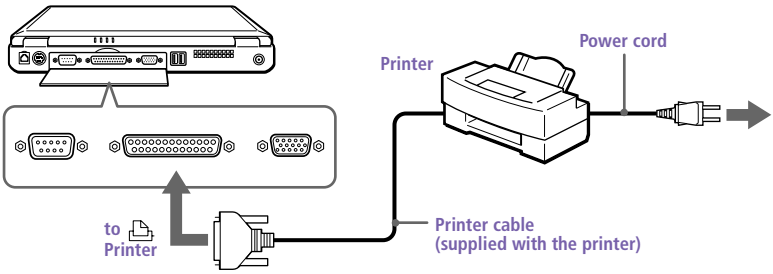
It is extremely important to close the port replicator connector cover after removing your computer from the port replicator. If the cover is left open, dirt may get inside and damage the computer.

Connecting a Printer

You can connect a Windows 98-compatible printer to your computer to print documents.

To connect a printer

❑ Use the symbol to locate the Printer connector. Plug the printer cable (supplied with the printer) into this port on the computer.



See the manual that came with your printer for more information on installation and use.

If your printer stops functioning after resuming from a power-saving mode, see "I cannot print" on page 64.

Before using the printer, you may need to change the Printer setting in the Sony Notebook Setup software. See "Displaying the Sony Notebook Setup Screen" in the online document *Customizing Your VAIO® Notebook Computer*.

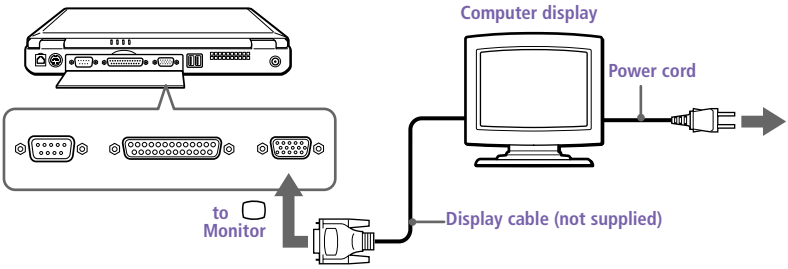
Connecting an External Display

You can connect an external display to your notebook computer. For example, you can use the computer with any of the following:

- Computer display (monitor) (page 49)
- Multimedia computer display (page 50)
- Projector (page 50)

To connect a computer display

- Use the 🖵 symbol on the back of the computer to locate the Monitor connector. Plug the display cable (not supplied) into this connector on the back of the computer.
- If necessary, plug one end of the display power cord into the display, and the other end into an AC outlet.



See the manual that came with your computer display for more information on installation and use.

To connect a multimedia computer display

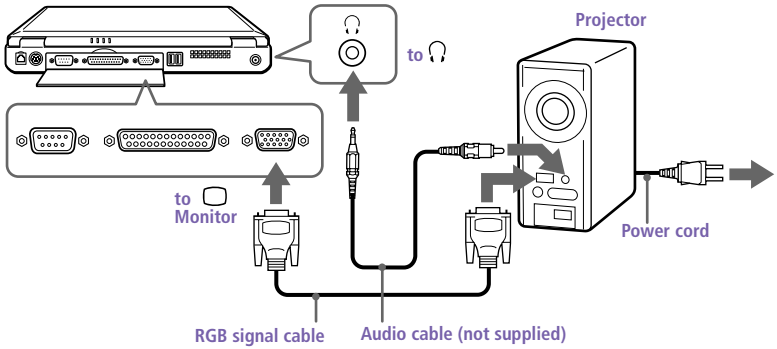
You can connect the notebook computer to a multimedia computer display that includes built-in speakers and a microphone.

1. Use the ▭ symbol to locate the Monitor connector. Plug the display cable into this connector.
2. Use the 🎧 symbol to locate the Headphone connector. Plug the speaker cable into this connector.
3. Use the 🎤 symbol to locate the Microphone connector. Plug the microphone cable into this connector.

See the manual that came with your multimedia computer display for more information on installation and use.

To connect a projector

You can use a projector, such as the Sony LCD Projector, as an external display.

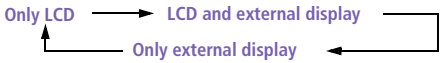


See the manual that came with your projector for more information on installation and use.

To select a display

When you connect an external display to the monitor connector, you can toggle the output between the Liquid Crystal Display (LCD), the external monitor, or both devices.

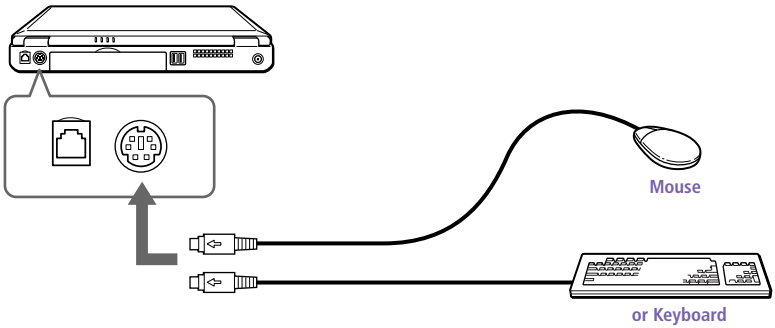
Use the Fn+F7 keys to select a display. See also "Selecting the Display Mode" in the online document *Customizing Your VAIO® Notebook Computer* for more information.

To	*Press*	*Result*
Switch to an external display	Fn+F7	Toggles between the LCD, the external display connected to the Monitor connector, or both the LCD and external display. 

Connecting an External Mouse or Keyboard

You can connect a PS/2® -style mouse or keyboard.

Plug the keyboard cable or mouse cable into this connector with the ▲ mark facing up.



To connect both a mouse and keyboard at the same time, use the optional PS/2 division connector.

See "Using the Keyboard" on page 16 for more information on using the keyboard.

See the manual that came with your mouse or keyboard for more information on installation and use.

Before you connect or disconnect the mouse or keyboard, turn off the computer.

Do not connect or disconnect the PS/2 device (keyboard or mouse) when the computer is on. It may cause malfunction.

The Sony USB mouse PCGA-UMS1 (not supplied) is a USB device. So you must connect it to the USB connector.

Connecting External Speakers

You can enhance the sound quality of your computer by connecting external speakers.

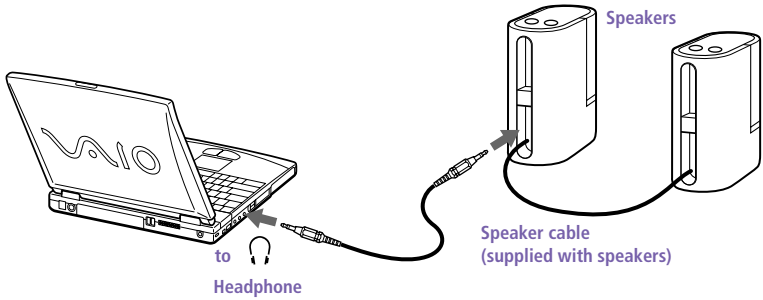
Make sure your speakers are designed for computer use.

Turn down the volume of the speakers before you turn them on.

Do not place diskettes on the speakers; the speakers' magnetic field may damage the data on the diskettes.

To connect external speakers

❑ Use the symbol to locate the Headphone connector. Plug the speaker cable into this connector.



See the manual that came with your speakers for more information on installation and use.

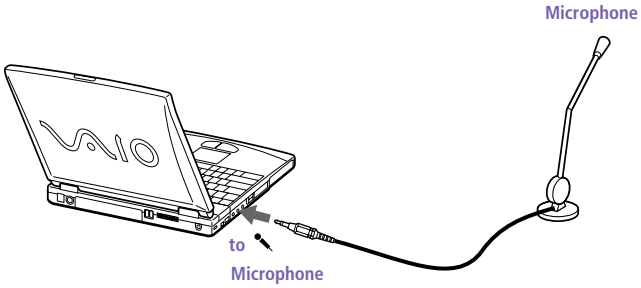
Connecting an External Microphone

You can enhance the quality of sound input by using an external microphone.

Make sure your microphone is designed for computer use. The microphone should be compliant with the plug-in power microphone.

To connect an external microphone

❑ Use the to locate the Microphone connector. Plug the microphone cable into this connector.



See the manual that came with your microphone for more information on installation and use.

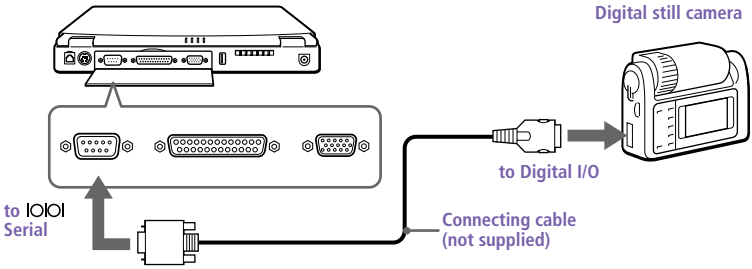
Connecting a Digital Still Camera or Other Serial Device

You can connect other computer peripherals, such as the Sony Digital Still Camera, to the Serial connector on your computer.

To connect a digital still camera

If your digital video camera recorder includes a Memory Stick™ Media slot, you can copy images from it to your computer via a Memory Stick card. Copy images to the Memory Stick card and insert the card into the optional Memory Stick/PC Card Adapter. Insert the adapter into the PC card slot on your computer.

❑ Use the symbol to locate the Serial connector. Plug the connecting cable (not supplied) into this port on the computer and into the Digital I/O connector on the digital still camera.



The Sony Digital Still Camera is pictured; you may need to connect your camera differently.

See the manual that came with your digital camera or other serial device for more information on installation and use.

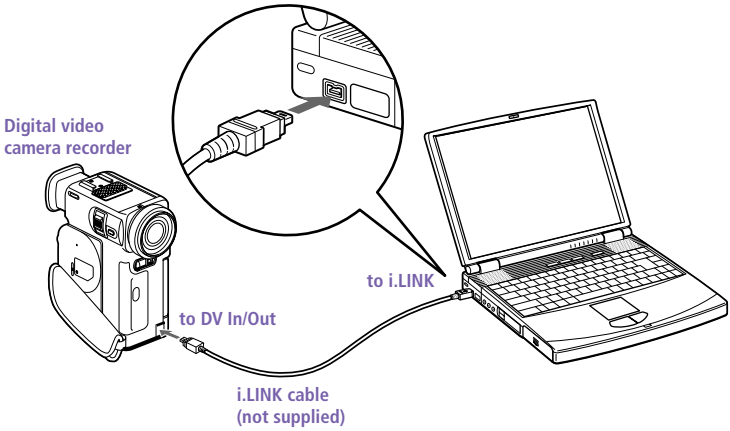
If you use a digital camera that has an infrared data communication system or other infrared communication device, see "Using Infrared Communication Devices" on page 33.

Connecting a Digital Video Camera Recorder

You can connect an i.LINK-enabled digital video camera recorder to the S400 i.LINK® (IEEE-1394) connector.

To connect a digital video camera recorder

- Plug one end of the i.LINK cable (not supplied) into the i.LINK connector on the left side of the computer and the other end into the DV In / Out connector on the digital video camera recorder.



The Sony digital video camera recorder is pictured; you may need to connect your camera differently.

On Sony digital video cameras, connectors labeled "DV In/Out" or "i.LINK" are i.LINK-compatible.

See the manual that came with your digital video camera recorder for more information on installation and use.

Do not connect more than one digital video camera at a time. The software supplied with your computer will not recognize multiple cameras.

The i.LINK connector on the computer does not supply power to external devices. If the external device requires power from the i.LINK connector, you cannot use the device with the computer.

The computer supports transfer rates up to 400 Mbps; however, the actual transfer rate is the lowest transfer rate of the external device.

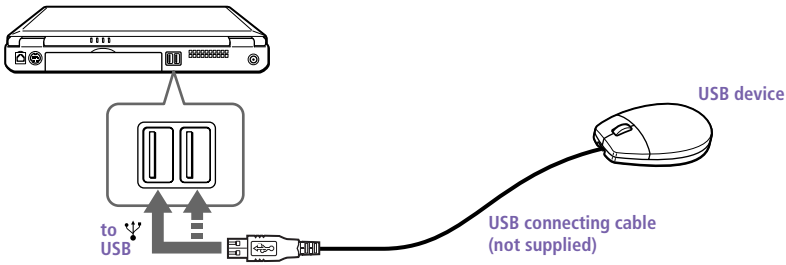
The i.LINK features available may vary depending on the software applications you use. See the documentation that came with your software for more information.

Connecting a Universal Serial Bus (USB) Device

You can connect a USB device to your computer.

To connect a USB device

❑ Use the ⚷ symbol to locate the USB connector. Plug one end of the USB cable into this port and the other end into the USB device.



You can use the optional Sony USB mouse PCGA-UMS1 with this computer. The USB mouse software driver is preinstalled in the computer. Therefore you only need to plug the USB mouse into the USB connector.

See the manual that came with your USB device for more information on installation and use.

Troubleshooting

This section describes how to solve common problems you may encounter when using your computer. Many problems have simple solutions, so try these suggestions before you call Sony Customer Support.

When you reconnect devices be sure to turn off the computer as described in "Shutting Down Your Computer" on page 13. Turning off the computer using other methods may result in data loss.

My computer does not start

- Check that the computer is plugged into a power source and that it is turned on. Check that the power indicator on the front panel of the computer indicates that the power is on.
- Check that the battery packs are inserted properly and that they are charged.
- Make sure there is no diskette in the floppy disk drive.
- Confirm that the power cord and all cables are connected firmly, as described in "Connecting Peripheral Devices" on page 42.
- If you plugged the computer into a power strip or UPS, make sure the power strip or UPS is turned on and working.
- If you are using an external display, check that it is plugged into a power source and turned on. Check that the brightness and contrast controls are adjusted correctly. See the manual that came with your display for details.
- Moisture condensation may have occurred. Do not use the computer for at least one hour and then turn on the computer.
- When the internal backup battery is low on power, it may not be able to start your system properly. The message "Press <F1> to resume, <F2> to setup" would appear at the bottom of the display. Should this happen:

  1. Press F2. The BIOS Setup menu appears.
  2. Set the date (month / day / year). Press Enter to move to the next item. To enter 01 / 31 / 1999, for example, type 1, press Enter, type 31, press Enter, type 1999, then press Enter.
  3. Press ↓ to select System Time, then set the time (hour: minute: second). Press Enter to move to the next item.

4 Press → to select Exit, then press ↓ to select Get Default Values. The message "Load default configuration now?" appears.

5 Check that Yes is selected, and press the Enter key. If No is selected, press ← to select Yes.

6 Select Exit (Save Changes), then press the Enter key. The message "Save Configuration changes and exit now?" appears.

7 Check that Yes is selected, then press the Enter key. The computer restarts.

When I turn on my computer, the message "Operating system not found" appears and Windows does not start

- Check the floppy disk drive to see if a non-bootable diskette is in the drive.
- If a non-bootable diskette is in the drive, turn off the computer, remove the diskette, and then turn on the computer again. Confirm that Windows starts properly. If Windows still does not start, follow the procedure below to initialize the BIOS.
- If the floppy disk drive is empty, follow the steps below to initialize the BIOS:

1 Remove any peripheral devices connected to the computer.

2 Turn the computer off and then turn it on again.

3 Turn on the computer and press the F2 key when the Sony logo appears. The BIOS setup menu screen appears.

4 Press the arrow keys to select the Exit menu.

5 Press the arrow keys to select Get Default Values and then press the Enter key. The message "Load default configuration now?" appears.

6 Check that Yes is selected, then press the Enter key.

7 Press the arrow keys to select Exit (Save Changes) and then press the Enter key. The message "Save configuration changes and exit now?" appears.

8 Check that Yes is selected, then press the Enter key. The computer restarts.

If your computer still displays the message "Operating system not found" and Windows does not start, contact Sony Customer Support.

My LCD does not display anything

- Check that the computer is plugged into a power source and that it is turned on. Check that the power indicator on the front panel of the computer is on.
- Check that the battery packs are inserted properly and that they are charged.
- The computer may be in LCD (Video) Standby mode. Press any key to activate the display.

The screen image on my external display is not centered or sized properly

Use the controls on your external display to adjust the image. See the manual supplied with your display for more information.

My computer "locks up"

- Try restarting the computer. On the Windows taskbar, click the Start button, click Shut Down, and then click Restart the computer.
- If you cannot restart as described in the preceding step, you can restart the computer by pressing Ctrl+Alt+Delete.
- If the previous step does not work, press the power button and hold it for at least four seconds. This turns off the power.
- If your computer locks up while playing a DVD-ROM / CD-ROM, stop the DVD-ROM / CD-ROM, and restart the computer by pressing Ctrl+Alt+Delete.

Pressing Ctrl+Alt+Delete may result in data loss in files that are currently open.

My software program "locks up" or crashes

Contact the software publisher or designated provider for technical support. See either the printed or the online version of *Read Me First* for a complete list of phone numbers.

My DVD-ROM drive tray does not open

- Make sure the computer is turned on.
- Press the Eject button on the DVD-ROM drive.
- If the Eject button does not work, you can open the tray by inserting a sharp, pointed object into the hole to the right of the Eject button.

I cannot play a CD-ROM

- Make sure the label of the CD-ROM is facing up.
- If the CD-ROM requires software, make sure the software is installed according to the program's instructions.
- Moisture condensation may have occurred. Leave the computer for at least 1 hour while the computer is turned on.
- Clean the CD-ROM.
- Check the speaker volume.

I cannot play a DVD-ROM

- If a region code warning appears when you are using the DVD player, it could be that the DVD-ROM you are trying to play is incompatible with the DVD-ROM drive in your notebook computer. The region code is listed on the disc's packaging.
- If you hear audio but cannot see video, your computer's video resolution may be set too high. For best results, change the Windows Control Panel / Display / Settings to 800 x 600 using 256 colors.
- If you see video but cannot hear audio, check all of the following: Make sure your DVD player's mute setting is off. Check the master volume setting in the audio Mixer. If you have connected speakers externally, check the volume settings in your computer speakers and check the connections between your speakers and the computer. Check the Windows Control Panel / System / Device Manager to see that the drivers are installed properly.
- A dirty or damaged disc may cause the computer to "hang" while it tries to read the disc. If necessary, reboot the computer, remove the disc, and then check that it is not dirty or damaged.

When I click an application icon a message appears, such as "You must insert the application CD into your CD-ROM drive," and the software does not start

- Some titles require specific files that are located on the application's CD-ROM. Insert the disc and try starting the program again.
- Make sure you place the disc in the tray with the label side facing up.

My floppy disk drive cannot write to a diskette

- If the diskette is write-protected, disable the write-protect feature or use a diskette that is not write-protected.
- Check that the diskette is properly inserted into the floppy disk drive.

My speakers have no sound

- If the built-in speakers are turned off, press Fn+F3 to turn on the speakers.
- If the speaker volume is turned to the minimum, press Fn+F4, and then press ↑ or → to increase the volume.
- If your computer is powered by batteries, check that the battery packs are inserted properly and that they are charged.
- If you are using an application that has its own volume control, check that the volume is turned up.
- Check the volume controls in Windows 98.
- If you connect external speakers, check that the speakers are properly connected and the volume is turned up. If the speakers have a mute button, make sure it is off. If the speakers are powered by batteries, check that the batteries are inserted properly and that they are charged.
- If you have connected an audio cable to the Headphone connector, disconnect the cable.

My modem does not work

- Check that the phone line is plugged into the line jack. See "Connecting a Phone Line" on page 43 for details.
- Check that the phone line is working. You can check the line by plugging in an ordinary phone and listening for a dial tone.
- Check that the phone number the program is dialing is correct.
- Check that the software you are using is compatible with the notebook computer modem. (All preinstalled programs are compatible.) Call the software publisher or Sony Customer Support.

My modem connection is slow

The computer's modem uses V.90 technology. Many factors influence modem connection speed, including telephone line noise or compatibility with telephone equipment (such as fax machines or other modems). If you think your modem is not connecting properly to other PC-based modems, fax machines, or your Internet Service Provider, check the following:

- Have your phone company check that your phone line is free from any line noise.

- If your problem is fax-related, check that there are no problems with the fax machine you are calling and that it is compatible with fax modems.
- If you are having a problem connecting with your Internet Service Provider (ISP), check that the ISP is not experiencing technical problems.
- If you have a second phone line available, try connecting the modem to that line.

My microphone does not work

If you are using an external microphone, check that the microphone is plugged into the Microphone connector. See "Connecting an External Microphone" on page 54 for details.

My mouse does not work

- If you are using an external mouse, check that the mouse is plugged into the mouse connector. See "Connecting an External Mouse or Keyboard" on page 52 for details.
- If you connected an external mouse while your computer is on, you must restart your computer.
- If you are using an optional Sony USB mouse PCGA-UMS1, check that the mouse is plugged into the USB connector.

My touchpad does not work

You may have disabled the touchpad while no mouse was connected to the computer. If so, you must restart the computer to make the touchpad work again.

I cannot use DV devices. The message "DV equipment seems to be disconnected or turned off" appears.

- Check that the DV device is turned on and that the cables are properly connected.
- If you are using multiple i.LINK® devices, the combination of the connected devices may cause unstable operation. In this case, turn off the power to all connected devices and disconnect unused devices. Check the connection, then turn on the power again.

My touchpad interprets a single tap as a double-click

Click the Mouse icon in the Control Panel and then change the button assignments in the Mouse Properties dialog box. One of the buttons is assigned to the double-click action.

My computer does not shut down

It is best to shut down your computer using the Shut Down command on the Windows 98 Start menu. Using other methods, including those listed here, may result in loss of unsaved data. If the Shut Down command does not work properly, follow these steps:

- Restart the computer by pressing Ctrl+Alt+Delete. If this does not work, press the power button and hold it for at least four seconds to turn off the power.
- Unplug the computer from the AC adapter and remove the battery pack from your computer.

My PC card is not working

- Make sure the PC card is compatible with Windows 98.
- Use the Sony Notebook Setup utility to disable devices you are not currently using.

The sound of my computer's fan is too loud

Use the PowerPanel utility to change the Thermal Control Strategy setting to Quiet. This setting slows down the CPU fan speed. See the PowerPanel Help for more information.

I cannot print

- The default setting for the printer port mode is correct for most printers. If you cannot print, try changing the printer port mode. In Sony Notebook Setup, select the Printer tab. If the printer port mode is set to ECP, change it to bidirectional. If the printer port mode is set to bidirectional, change it to ECP. See "Displaying the Sony Notebook Setup Screen" in the online document *Customizing Your VAIO® Notebook Computer* for details on using Sony Notebook Setup.
- Your connected printer may not function after the computer resumes from a power-saving mode. When this occurs, follow the procedures below to reset the printer connection:

  1. Right-click the My Computer icon on the desktop, and then select Properties.
  2. Click the Device Manager tab.
  3. Select Refresh, and then click OK. The printer should now function properly.

Power Management

The operating system may become unstable if a lower power state such as system hibernation is initiated and then changed before the operating system completely enters the lower power state. To restore the computer to its normal operating stability, close all open applications, press the power button, and hold it for four seconds or more to completely shut down the computer.

Changing the Window Design of Sony Software

To change the window design of Sony software:

1. Click the Start button, point to Settings, and then click Control Panel.
2. Double-click UI Design Selector.
3. Click <<or>> and select the desired design.
4. Click Apply. The UI Design Selector window design changes. The window design for your software will match the UI Design Selector window.
5. To choose another selection, click <<or>>.
6. Click OK. The UI Design Selector closes and the window design of your Sony software displays.

Using the System and Application Recovery CDs

The following sections describe how to use the System Recovery and Application Recovery utilities.

Using the System Recovery CD(s)

You can reinstall software titles that shipped with your computer if they are corrupted or accidentally erased. You may not need to recover the entire contents of your hard drive. If you experience a problem with your computer, reinstalling an individual device driver or software title may correct the problem. Use the Application Recovery CD(s) to reinstall individual applications or device drivers. See "Using the Application Recovery CD(s)" on page 69.

The System Recovery CD contains a backup copy of all the software originally installed on your hard disk drive. **It can be used only to recover the hard disk of the notebook computer you purchased.**

The System Recovery utility gives you three options:

- **Full Restore without Format** restores all the software titles that originally came with your computer without formatting the hard disk.
- **Full Restore with Format** formats the hard disk drive and then restores all the original software. If your hard drive is partitioned into C and D drives, the computer offers you the option to reformat the drive into a single partition.
- **Operating System Only** restores the Windows® 98 Second Edition operating system, the notebook computer utility programs, and the device drivers that shipped with your computer.

! **If you choose the Full Restore with Format or Operating System Only option, your hard disk will be formatted, which removes all the information on the hard disk drive. You will lose any software you have installed and any other files you have created since you started to use your computer. This means you will have to reinstall any applications that were not included with the computer when you purchased it. If you choose the Full Restore without Format option, you may need to reinstall applications that were not included with the computer when you purchased it. If you have any questions on using the System Recovery CD, contact Sony Customer Support.**

To use the System Recovery CD(s)

You need to complete the Microsoft® Windows® 98 registration process when you use the System Recovery CD. Make sure you have the product ID number located on the cover of your Microsoft Windows 98 *Getting Started* manual. You will need this number to complete the recovery process.

1 Insert the Sony System Recovery CD in the DVD-ROM drive.

The System recovery utility boots from the DVD-ROM drive. It must be in the DVD-ROM drive when you turn on the computer.

2 Shut down your computer as described in "Shutting Down Your Computer" on page 13.

3 Wait four seconds and turn on your computer.

4 Click OK to signify you have read and accept the Microsoft End-User License Agreement.

5 When the System Recovery menu appears, follow the on-screen instructions to complete the recovery process.

Your system may include one or two System Recovery CDs. If you have two System Recovery CDs, insert the first CD to run the System Recovery program. You are prompted to insert the second CD once the information from the first CD has been installed.

The recovery process takes 30 to 60 minutes to complete.

If your computer does not start from the Recovery CD

1 Press the power button and hold it for more than four seconds to turn off the computer.

2 Turn on the computer. When the Sony logo is displayed, press the F2 key. The BIOS setup menu screen appears.

3 Press the arrow keys to select the Exit menu.

4 Press the arrow keys to select Get Default Values and then press the Enter key. The message "Load default configuration now?" appears.

5 Check that Yes is selected, then press the Enter key.

6 Press the arrow keys to select Exit (Save Changes) and then press the Enter key. The message "Save configuration changes and exit now?" appears.

7 Check that Yes is selected, then press the Enter key. The computer restarts from the Recovery CD.

Using the Application Recovery CD(s)

The Application Recovery CD(s) allows you to reinstall individual applications and device drivers if they are corrupted or accidentally erased. Reinstalling an individual device driver or software title may correct a problem you are experiencing with your computer, and you may not need to recover the entire contents of your hard drive. If you do need to reinstall all the software titles that shipped with your computer, use the System Recovery CD(s). See "Using the System Recovery CD(s)" on page 67.

You can also use the Application Recovery CD to install Windows NT® Workstation 4.0 drivers on your computer.

You must be in Windows to run the Application Recovery CD. The application will not run from DOS. If you have any questions on using the Application Recovery CD, contact Sony Customer Support.

To use the Application Recovery CD(s)

1 Turn on your computer. If your computer is already on, close all applications.

2 When the Windows desktop appears, insert the Sony Application Recovery CD in the DVD-ROM drive. The Application Recovery utility loads automatically.

3 When the Application Recovery menu appears, select the icon for the application you want to restore and then follow the on-screen instructions to complete the recovery process.

Your system may include one or two Application Recovery CDs. If you have two Application Recovery CDs, insert the first CD to run the Application Recovery program. You may be prompted to insert the second CD, depending on the application you wish to restore.

About the Software on Your Computer

Your VAIO notebook computer is ready to help you work, play, learn, and communicate as soon as you turn it on. This section gives you an overview of the activities you can perform with your software titles. For support information, see “For Answers to Your Software Questions” on page 76.

Adobe Acrobat® Reader

Adobe Systems Inc.

Acrobat Reader software allows you to view, navigate, and print electronic documents in Adobe Portable Document Format (PDF), an open file format that is intended to preserve the fidelity of documents created on all major computer platforms.

Adobe PhotoDeluxe® Business Edition

Adobe Systems Inc.

Create amazing photo effects with Adobe PhotoDeluxe. Without learning complex software, you can enhance, restore, and be creative with your photos. Includes built-in guided activities, stock photos, clip art and templates to assist you.

America Online®

America Online

America Online is a popular Internet online service. Stay in touch with family and friends with easy-to-use e-mail, manage your personal finances, get the latest news and sports scores, and chat with thousands of others who share your interests.

AT&T WorldNet® Service

AT&T

Fast, reliable Internet access from AT&T WorldNet Service. AT&T WorldNet Service provides web-based e-mail, a personalized start page from Excite,SM easy access to the Excite search engine, free web pages, online and live agent technical support, instant messaging, and special shopping discounts at Market Square.

CompuServe® 2000

CompuServe, Inc.

CompuServe is the most comprehensive source of organized business and educational information online today. CompuServe allows you to access the vastness of the Internet, without wasting time wading through it. Maximize your time online with CompuServe.

DVgate™ Still

Sony Electronics

Connect a digital video camera recorder to the i.LINK® connector and capture your own still images. You can save your images in a variety of popular file formats.

DVgate™ Motion

Sony Electronics

Connect a digital video camera recorder to the i.LINK connector and capture your own video images. You can edit clips from your video, add others, and combine clips into new movie segments.

EarthLink Network TotalAccess™

EarthLink Network, Inc.

An Internet Service Provider that supplies access, information, and assistance to its customers, introducing them to the Internet. Member benefits include e-mail, newsgroups, a personal start page, a free 6 MB web site, a member newsletter, and 24-hour technical support.

McAfee VirusScan®

Network Associates, Inc.

Protect your computer from viruses. VirusScan can detect viruses from floppy disks, Internet downloads, e-mail attachments, intranets, shared files, CD-ROMs, and online services.

Media Bar™

Sony Electronics

Media Bar software is your all-in-one solution for audio / video playback. Media Bar software handles all common computer multimedia formats and controls selected Sony devices. In addition to audio / video library cataloging and playlist management, Media Bar software includes digital video quality control and effects features. Media Bar software seamlessly integrates a variety of new media formats with an easy-to-use software interface.

Microsoft® Internet Explorer for Windows® 98

Microsoft Corporation

Internet Explorer delivers the web the way you want it. It is safe, easy to use, and you can personalize how you access the web. Outlook Express and other tools in Internet Explorer also help you have a great experience when you are on the web.

Microsoft® Outlook® 98

Microsoft Corporation

Outlook 98 is Microsoft's premier messaging and collaboration client. It combines the leading support for Internet standards-based messaging systems with integrated calendar, contact, and task-management features.

Microsoft® Works Suite 99

Microsoft Corporation

Microsoft Works Suite 99 is an integrated program for creating spreadsheets, databases, calendars, and more. The Works Calendar reminds you of important dates.

Netscape Communicator®

Netscape Communications

Netscape Communicator is an all-in-one Internet tool that makes it easy to browse the web, send Internet e-mail, chat, read newsgroups, and compose great web documents.

PictureGear™

Sony Electronics

This image management software displays images from your hard drive, a Sony digital still camera, or a Sony Mavica® camera. The images appear in a convenient light-table format, so that you can easily view the contents of an entire folder.

Prodigy Internet™

Prodigy Communications Corporation

An online service that helps you find what you need online faster and smarter. Prodigy delivers powerful online content such as sports scores, stock quotes, news, and easy access to Excite, plus quality customer service, all at a competitive price.

Quicken® Basic 99

Intuit, Inc.

Quicken is a fast, easy way to organize your finances. Quicken works just like your checkbook, so it is easy to learn and use. Quicken manages all your finances, bank accounts, credit cards, investments, and loans. You can even pay your bills online.

Smart Capture

Sony Electronics

Smart Capture is a fun new way to send multimedia messages via e-mail. Smart Capture manages the i.LINK connection between your computer and a Sony Digital Handycam® Camcorder that supports the i.LINK interface. It allows you to capture compressed video or still images that you can save or share via e-mail. A smart solution to computer, digital audio / video and network convergence.

Smart Connect
Sony Electronics
Smart Connect allows you to use an i.LINK cable to connect your VAIO computer to another VAIO computer that supports Smart Connect. You can then use one computer to copy, delete, and edit files on the other computer. You can also print from a printer attached to either computer.

Smart Label
Sony Electronics
This tool allows you to record your voice and play it back at any time to remind you of important information, such as telephone numbers or appointments. It can also be used as a normal text memo pad. It can record a voice memo up to 60 seconds long. You can combine this with pictures and / or text to create a memo that you can place on your computer desktop.

Smart Pad
Sony Electronics
Smart Pad enables you to record handwritten information such as text, symbols, simple maps, and drawings.

Smart Publisher
Sony Electronics
Smart Publisher makes it easy for you to send web pages to the Internet using e-mail or FTP.

Smart Write
Sony Electronics
A word processor that allows you to create documents that incorporate pictures and sound. With Smart Write, you can record your voice right into the page and draw directly onto your documents with a computer "pencil."

WinFax® Basic Edition
Symantec Corporation
WinFax Basic incorporates an easy-to-use interface that allows you to send and receive faxes easily. Upgrade to WinFax Pro to receive additional features.

About Your Recovery CDs

Application Recovery CD(s)

Sony Electronics

This program allows you to reinstall individual applications and device drivers. Use it to restore corrupted or accidentally erased files.

System Recovery CD(s)

Sony Electronics

This program allows you to restore the software titles that shipped with your computer if they become corrupted or are erased accidentally. It can be used only to restore the hard disk of this Sony computer.

For Answers to Your Software Questions

Acrobat® Reader, Adobe PhotoDeluxe® Business Edition (Adobe Systems Incorporated)

website	http://www.adobe.com/
phone	206-628-2746 (fee-based support)
fax	206-628-5737
e-mail	techdocs@adobe.com
hours	M-F, 6 AM-5 PM PT

America Online® (America Online)

website	http://www.aol.com/
phone	800-827-3338
hours	7 days a week, 24 hours a day

AT&T WorldNet® Service (AT&T)

website	http://www.worldnet.att.net
phone	800-400-1447
e-mail	worldnet@attmail.com
hours	7 days a week, 24 hours a day

CompuServe® 2000 (CompuServe, Inc.)

website	http://www.compuserve.com/
phone	800-848-8990
hours	M-F, 8 AM - 1 AM ET, S-S 10 AM - 10 PM ET

EarthLink Network® (EarthLink Network, Inc.)

website	http://help.earthlink.net/techsupport/
phone	800-395-8410
e-mail	support@earthlink.net
hours	7 days a week, 24 hours a day

McAfee VirusScan® (Network Associates, Inc.)

website	http://support.mcafee.com
phone	408-988-3832
e-mail	cybr@nai.com
hours	M-F 9AM-5PM Central Time

Netscape Communicator® (Netscape Communications Corporation)

website	http://www.netscape.com/
phone	888-4SONYPC (888-476-6972)*
hours	7 days a week, 24 hours a day

* Support from 1-888-4SONY PC is free of charge for 90 days after the original date of purchase.

Prodigy Internet™ (Prodigy Communications Corporation)

website	http://www.prodigy.com/
phone	800-213-0992
hours	7 AM - 3 AM ET

Quicken® Basic (Intuit Inc.)

website	http://www.intuit.com/support/
phone	900-555-4688
hours	7 days a week, 24 hours a day

Windows 98 Operating System, Word, Works, Money, Internet Explorer, Outlook 98 (Microsoft Corporation)

website	http://www.microsoft.com/support/
phone	888-4SONYPC (888-476-6972)*
hours	7 days a week, 24 hours a day

* Support from 1-888-4SONY PC is free of charge for 90 days after the original date of purchase.

Sony Service Center

For the Sony Service Center nearest you, call 1-888-4SONYPC (1-888-476-6972).

Adding Memory

In the future you may want to install memory modules to expand the functionality of your computer. You can increase memory up to 256 MB (128MB x 2), by installing optional memory modules. 128 MB of memory are already installed (64MB x 2). You can add an expansion memory module in a slot. 128 MB expansion memory modules are available as optional memory modules.

The size of your memory may differ if you purchased a specially configured system.

Make sure you observe the proper safety precautions when you install memory modules in your computer. See the bulleted list below. Be careful when adding memory. Mistakes when installing or removing a memory module may cause a malfunction.

- The procedures described below assume familiarity with the general terminology associated with personal computers and with the safety practices and regulatory compliance required for using and modifying electronic equipment.
- Disconnect the system from its power source and from any telecommunications links, networks, or modems before you open the system or follow any of the procedures described below. Failure to do so may result in personal injury or equipment damage.
- Electrostatic discharge (ESD) can damage memory modules and other components. Perform the procedures described below only at an ESD workstation. If such a station is not available, do not work in a carpeted area, and do not handle materials that produce or hold static electricity (cellophane wrappers, for example). Ground yourself by maintaining contact with an unpainted metal portion of the chassis while performing the procedure.
- Do not open the memory module package until you are ready to install the module. The package protects the module from ESD.
- Use the special bag for preventing ESD or use aluminum foil when you store the memory module.

Typical expansion memory configuration

Total System Memory (MB)	Slot 1 (MB)	Slot 2 (MB)
128†	64	64
192	64	128
256	128	128

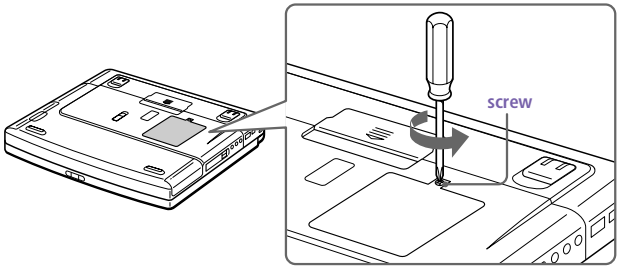
† 128 MB is the default memory amount.

To remove a memory module

1 Shut down your computer and disconnect all peripheral devices, such as your printer.

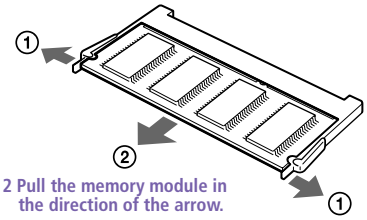
2 Unplug the computer and remove the battery packs.

3 Wait until the computer cools down. Then unscrew the screw at the bottom of your computer. Loosen the screw with an appropriate screwdriver.



4 Touch a metal object (such as the connector panel on the back of your computer) to discharge static electricity.

5 Remove the memory module.


1
2
2 Pull the memory module in the direction of the arrow.
1
1 Pull the tabs in the direction of the arrows. The memory module is released.

6 Tighten the screw on the bottom of the computer.

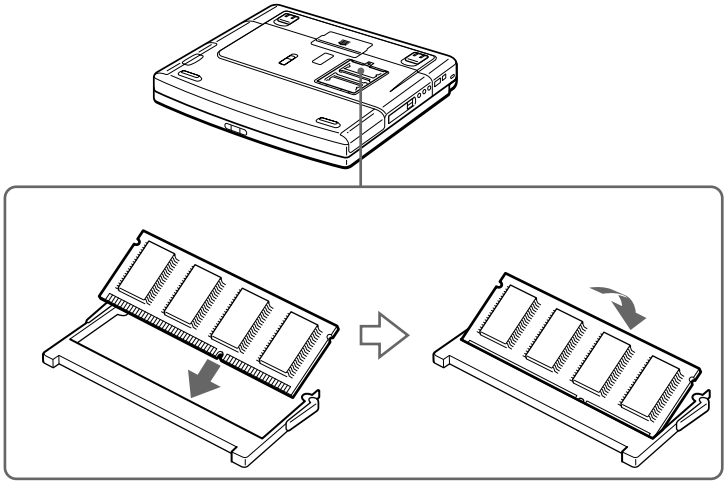
Your computer comes with a memory module installed in the memory slot. To upgrade your memory you will need to remove this module from the slot before installing your upgrade memory.

To install a memory module

1 Follow steps 1 to 4 of "To remove a memory module."

2 Remove the memory module from its packaging.

3 Install the memory module.



1 Slide the memory module into the slot. 2 Press the module into place until it clicks.

4 Tighten the screw on the bottom of the computer.

To view the amount of memory

1 Turn on the computer.

2 Click the Start button, point to VAIO, and click "Sony Notebook Setup."

The Sony Notebook Setup screen appears.

3 Click the "About This Computer" tab to view the amount of system memory. If the additional memory is not shown, repeat steps 1-4 in "To install a memory module."

Specifications

Model	PCG-F370	PCG-F390
Processor	450 MHz* Pentium III	500 MHz* Pentium III
Hard Disk Drive	12.0 GB†	12.0 GB†
Standard RAM	128 MB SDRAM, expandable to 256 MB	128 MB SDRAM, expandable to 256 MB
LCD Screen	14.1" XGA TFT	15.0" XGA TFT
L2 Cache Memory	256 KB (on die)	256 KB (on die)
MPEG	MPEG2 Digital Video; supports full-screen playback	
Graphics	128-bit accelerator with 2.5 MB Video RAM	
Sound Capabilities	16-bit CD-quality stereo sound	
Diskette Drive	Removable 3.5" 1.44 MB	
DVD-ROM Drive	Reads CD data from 10.3X to 24X variable transfer rate.‡ Reads DVD data from 1.7X to 4X variable transfer rate.**	
Laser Diode Properties	DVD-ROM drive wave length 780 nm and 650 nm; laser output 4.59 µW	
Modem	K56flex™ technology / V.90 compatible modem††	
Infrared	Supports 4 Mbps, 1.1 Mbps, and 115 Kbps IrDA Standard	
Drive Bay	Supports floppy disk drive (included) Supports second rechargeable battery (optional)	
Expansion Capabilities	Type II PC cards and Type III PC card Card Bus support	
Built-in Capabilities	Microphone Stereo speakers Digital touch pad	
Telecommunication Capabilities	Data and fax send / receive††	
Connection Capabilities	2 USB Ports i.LINK Serial Port Keyboard / mouse (PS / 2®-style) VGA Monitor Video out Parallel (printer) Phone line (RJ-11) Microphone Headphone Port Replicator	
Supplied Accessories	Video cable Floppy disk drive Rechargeable battery AC adapter and power cord Weight Saver	
Service	90-day limited express service‡‡ Extendible to one year from original date of purchase upon registration	

Model	PCG-F370	PCG-F390
Limited Warranty	90-day parts / labor standard‡‡ Extendible to one year from original date of purchase upon registration	
Power Requirements	49.5 watts maximum (19.5V DC / AC 120-240V)	
Power Management	Energy Star compliant Advanced Configuration and Power Interface (ACPI)	
Battery	Lithium-ion, supports dual battery operation	
Dimensions	12.8"(w) x 1.8"(h)***x 10.5"(d) (324 x 46.9 x 265.5 mm)	12.8"(w) x 2.1"(h)***x 10.5"(d) (324 x 54.1 x 265.5 mm)
Weight	6.8 lbs. (3.1 kg) (with battery and weight saver) 7.3 lbs. (3.3 kg) (with battery and floppy disk drive)	7.3 lbs. (3.3 kg) (with battery and weight saver) 7.7 lbs. (3.5 kg) (with battery and floppy disk drive)
Operating Temperature	41º F to 95º F (+5º C to 35º C) temperature gradient less than 18º F (10º C) per hour	
Operating Humidity	20% to 80% (not condensed), provided that humidity is less than 65% at 95º F (35º C), hygrometer reading of less than 84º F (29º C)	
Storage Temperature	-4º F to 140º F (-20º C to 60º C), temperature gradient less than 18º F (10º C) per hour	
Storage Humidity	10% to 90% (not condensed) provided that humidity is less than 20% at 140º F (60º C), hygrometer reading of less than 95º F (35º C)	

* MHz denotes microprocessor internal clock speed; other factors may affect application performance.

† The size of your hard disk may differ if you purchased a specially configured system. GB means one billion bytes when referring to hard drive capacity. Accessible capacity may vary.

‡ Data on a CD-ROM disc is read at a variable transfer rate, ranging from 10.3X at the innermost track to 24X at the outermost track (the data transfer standard 1X rate is 150 kbytes/s). The average data transfer rate is 17.2X or 2580 kbytes/s.

** Data on a DVD-ROM disc is read at a variable transfer rate, ranging from 1.7X at the innermost track to 4X at the outermost track (the data transfer standard 1X rate is 1392 kbytes/s). The average data transfer standard is approximately 2.85X or 3823 kbytes/s. A DVD-ROM drive reads data on a CD-ROM disc at a variable transfer rate, ranging from 10.3X at the innermost track to 24X at the outermost track. The average data transfer rate is approximately 17.15X or 2936 kbytes/s or 2576 kbytes/s.

†† Maximum speed for faxing is 14.4 kbps. Your modem is capable of downloading at 56 kbps using K56flex technology or V.90. Your online service or Internet Service Provider, however, may not support this technology or operate at this speed.

‡‡ Certain restrictions apply.

*** Height measured at thickest point. Thinnest height for PCG-F370 is 35.8mm and PCG-F390 is 38.5mm.

If a region code warning appears when you are using the DVD player, it could be that the DVD-ROM you are trying to play is incompatible with the DVD-ROM drive in your VAIO Notebook. Region code indicators such as a "1" or "ALL" are labeled on some DVD discs to indicate what type of player can play the discs. Unless a "1" or "ALL" is labeled on your DVD disc or on the packaging, you cannot play the disc on this player.

Specifications are subject to change without notice.

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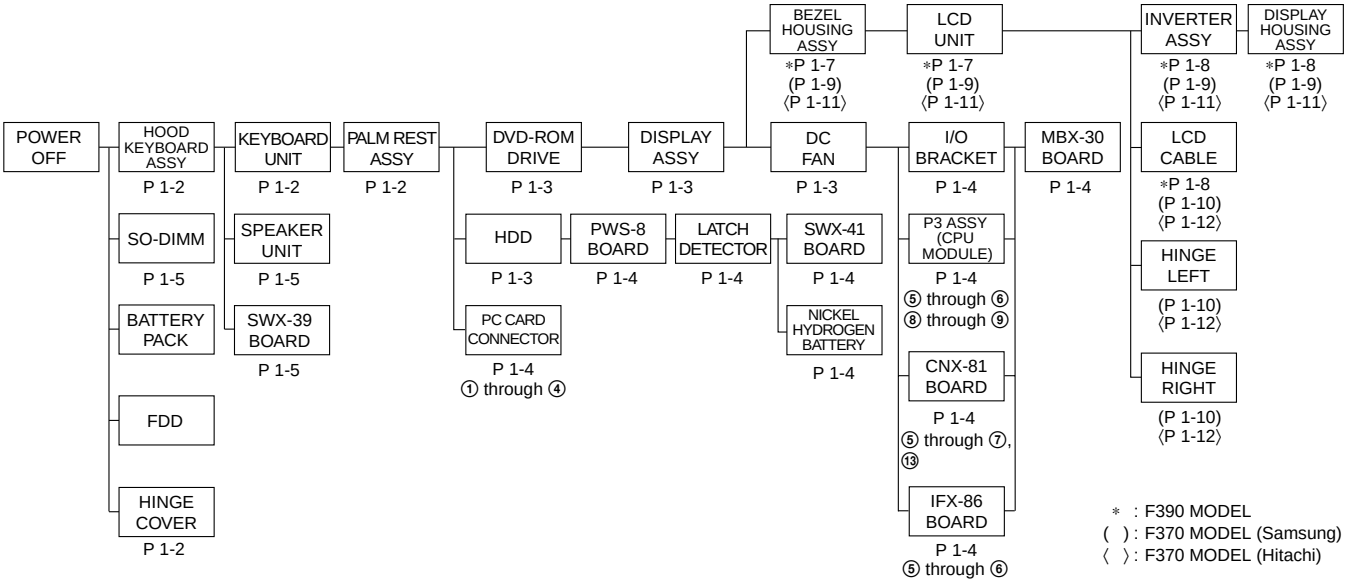
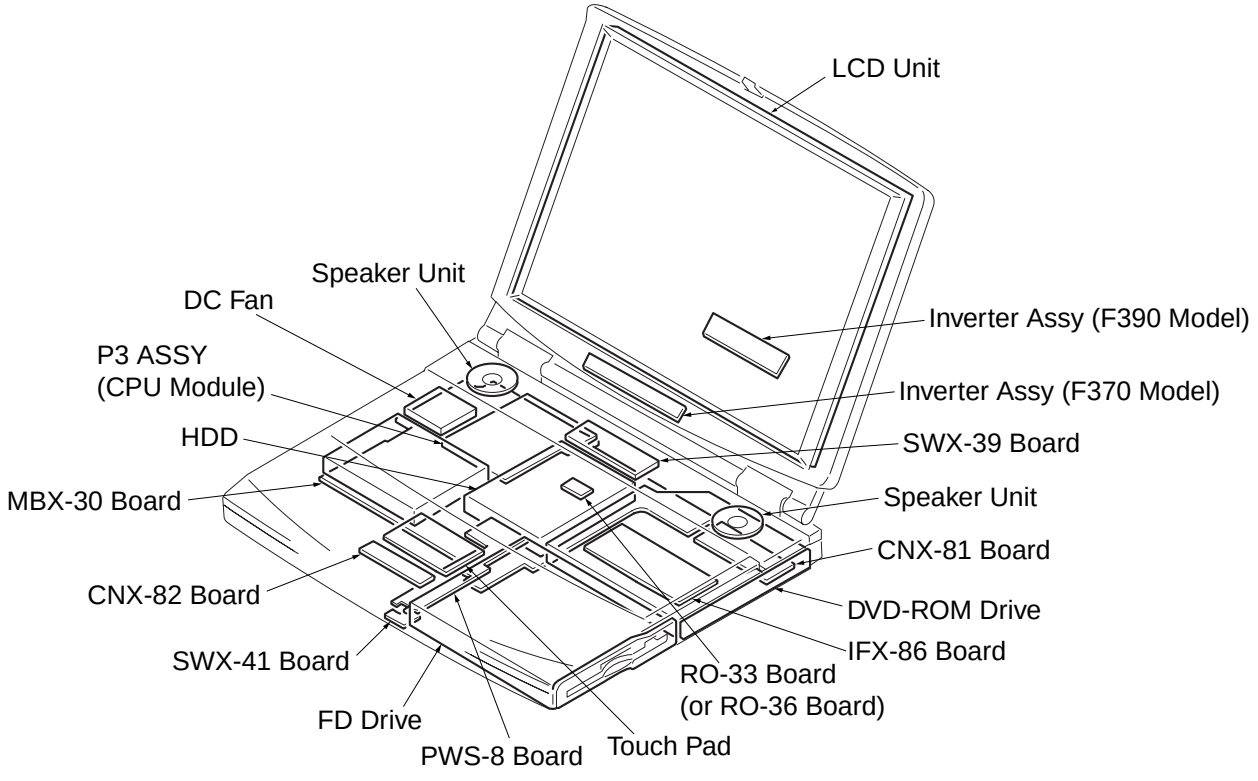
1-1. Flowchart



• P XX means pages that appears in this manual.

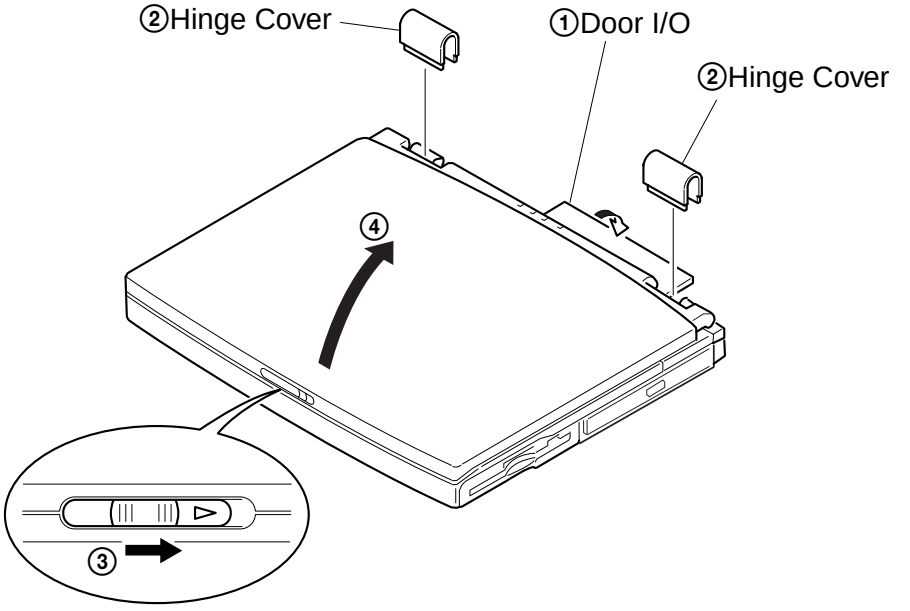
• Remember that hard disk drives are easily damaged by vibration. Always handle with care.

1-2. Main Electrical Parts Location Diagram

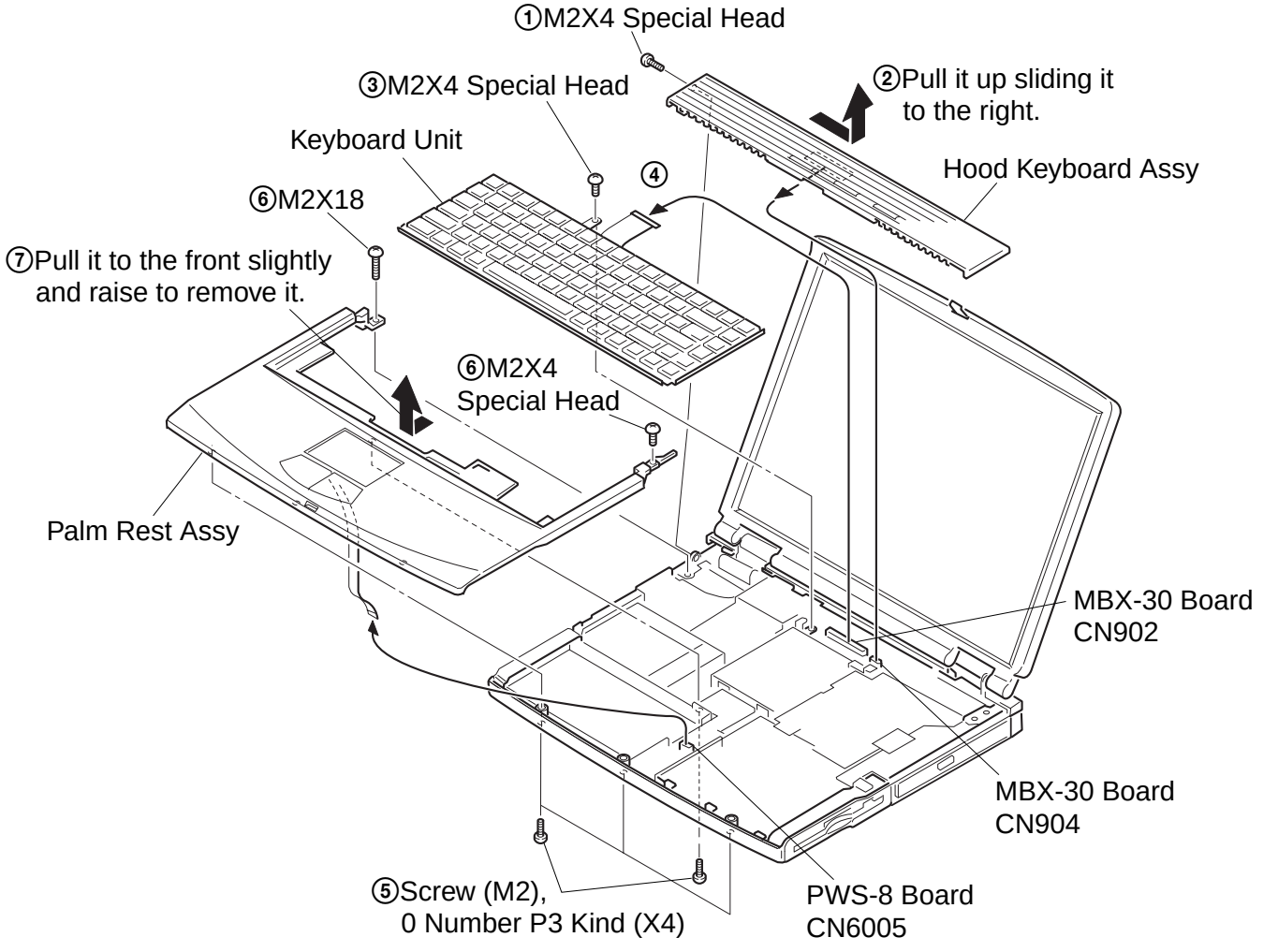


1-3.Removal

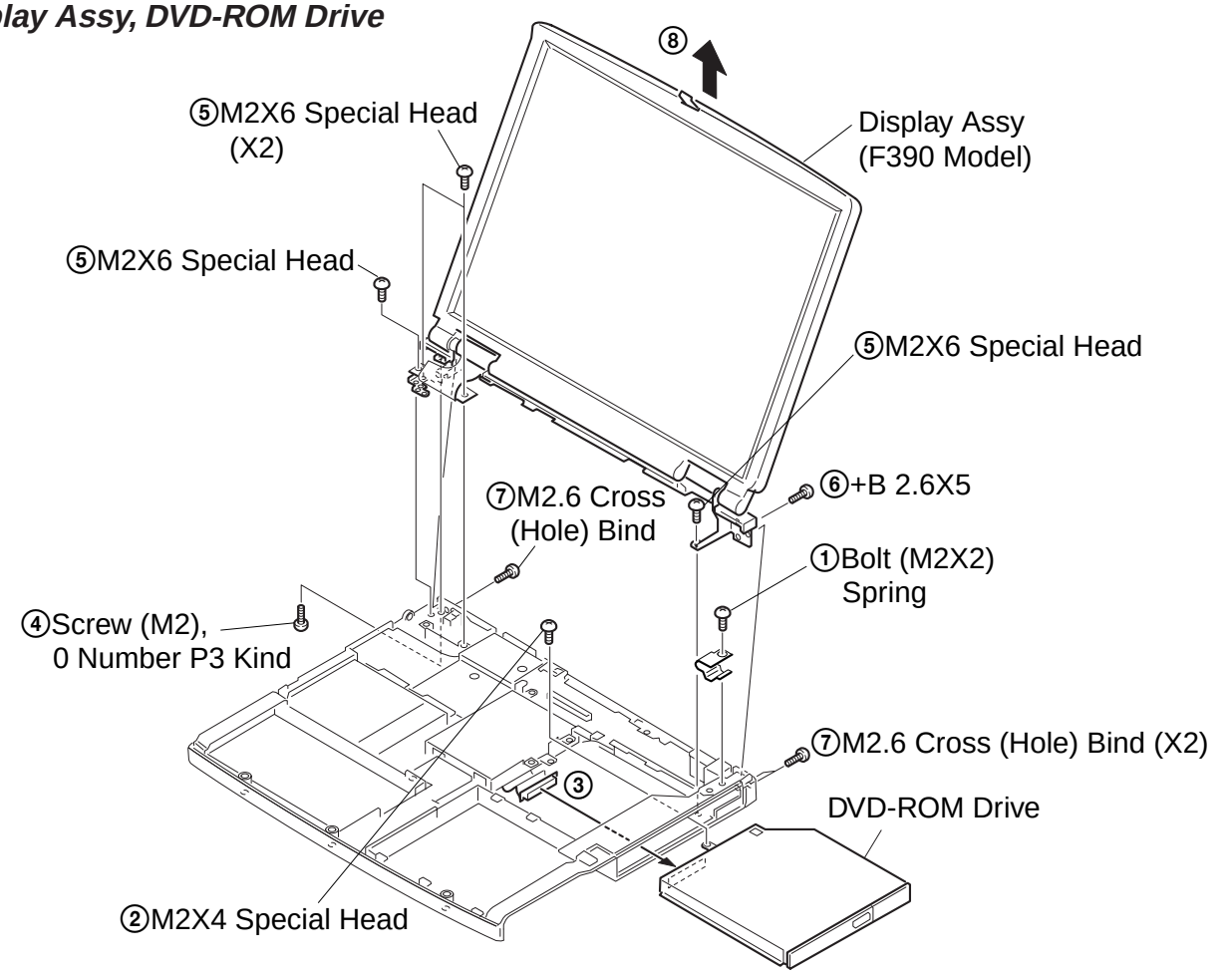
1. Hinge Cover



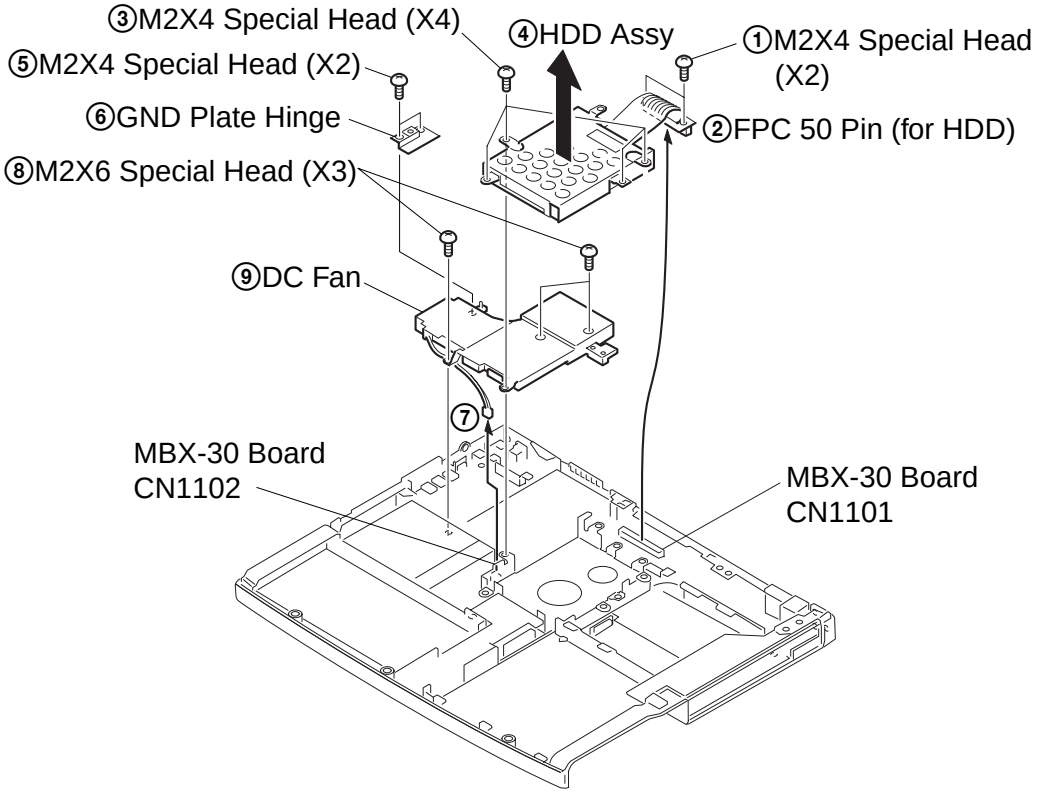
2. Keyboard Unit, Palm Rest Assy, Hood Keyboard Assy



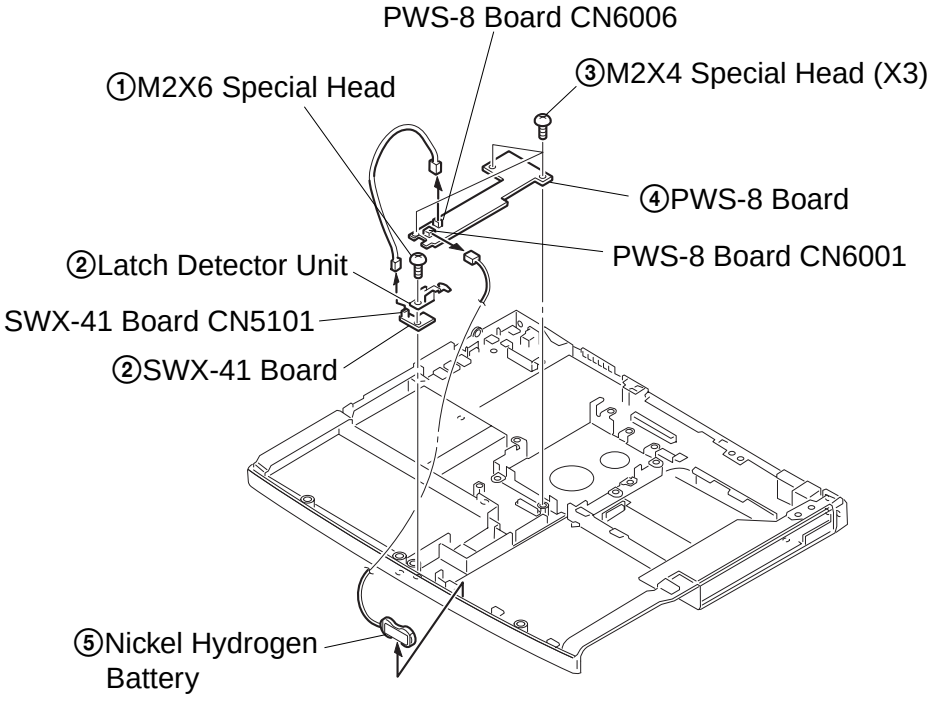
3. Display Assy, DVD-ROM Drive



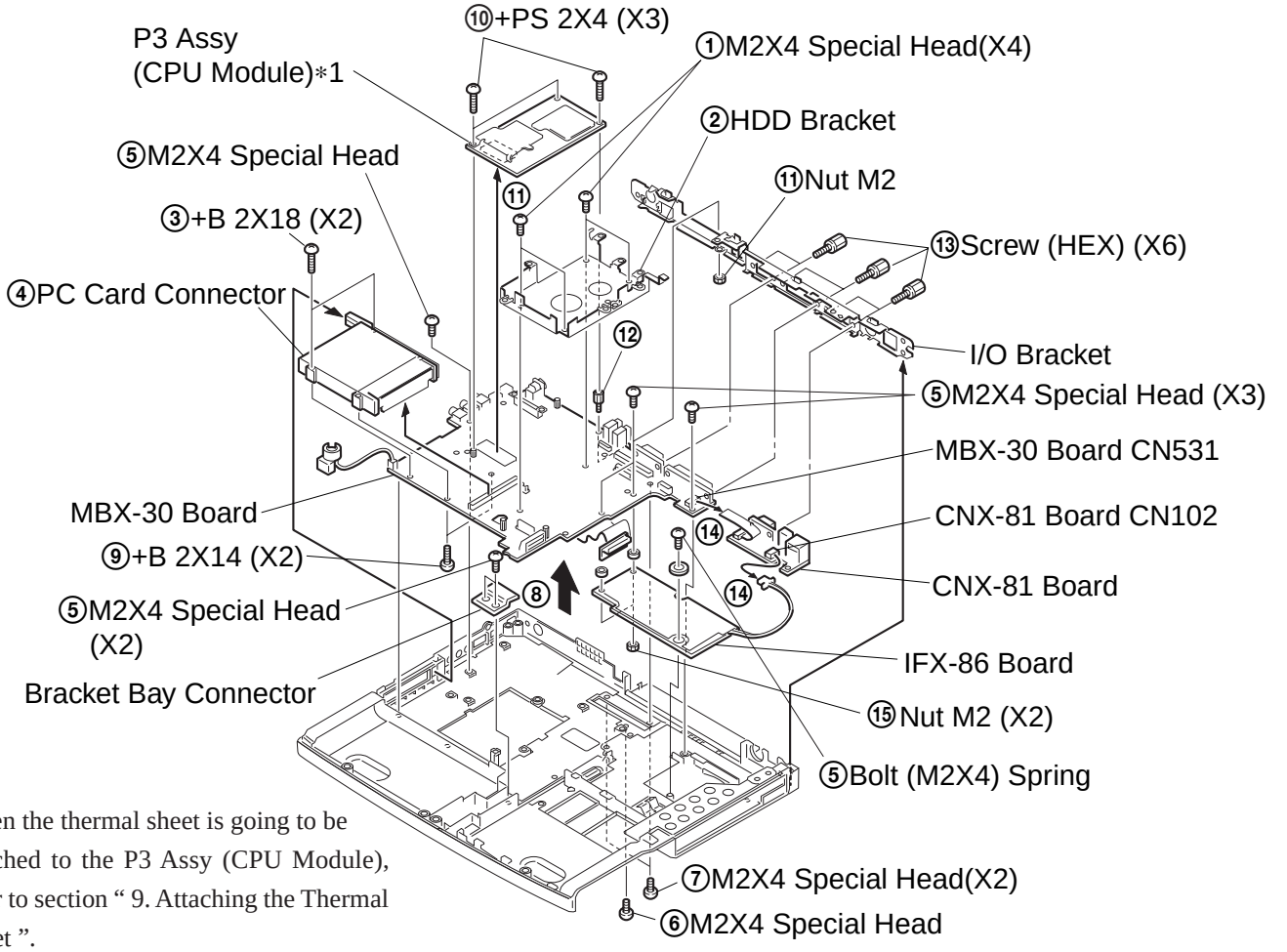
4. HDD Assy, DC Fan



5. SWX-41 Board, Latch Detector Unit, PWS-8 Board, Nickel Hydrogen Battery



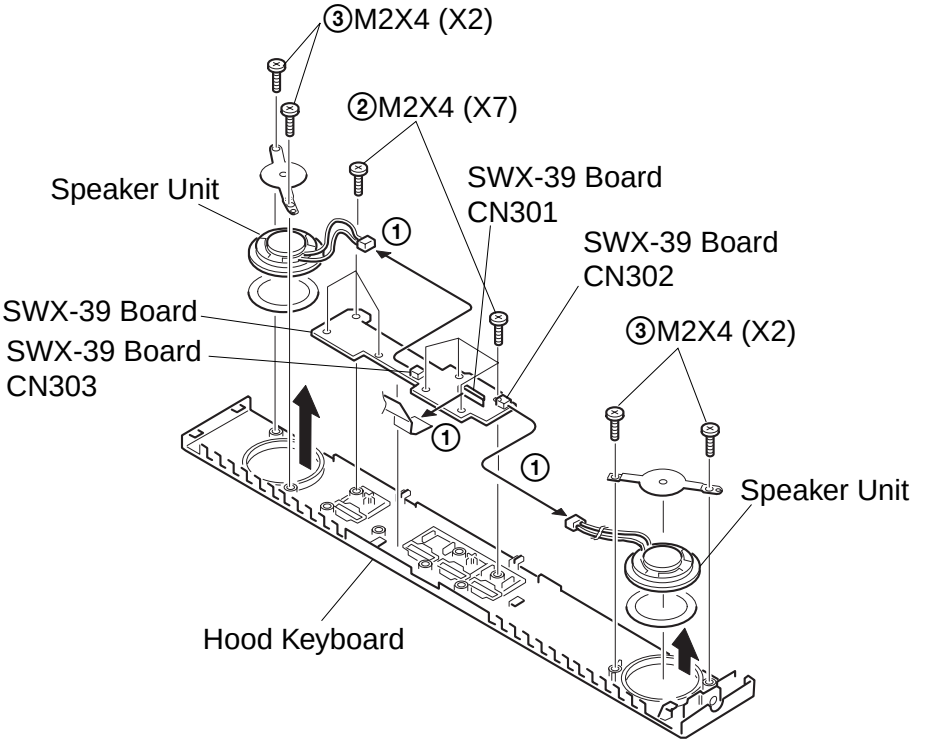
6. PC Card Connector, IFX-86 Board, CNX-81 Board, P3 Assy (CPU Module), MBX-30 Board



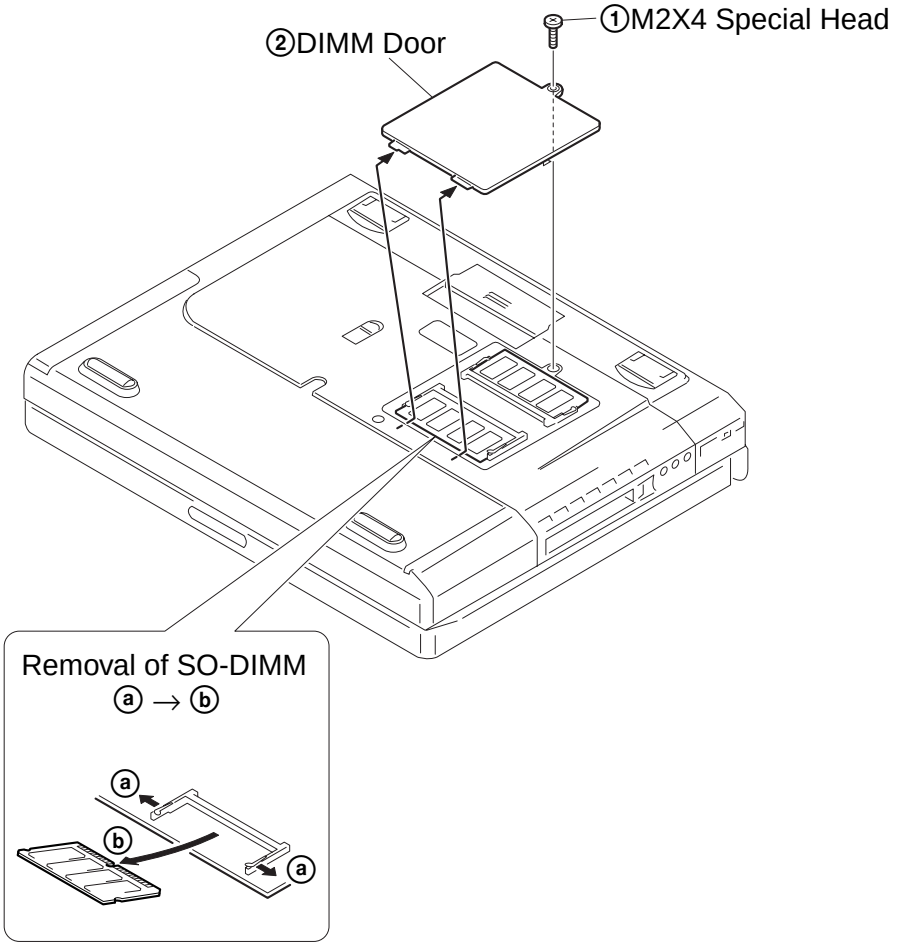
*1

When the thermal sheet is going to be attached to the P3 Assy (CPU Module), refer to section " 9. Attaching the Thermal Sheet ".

7. Speaker Unit, SWX-39 Board



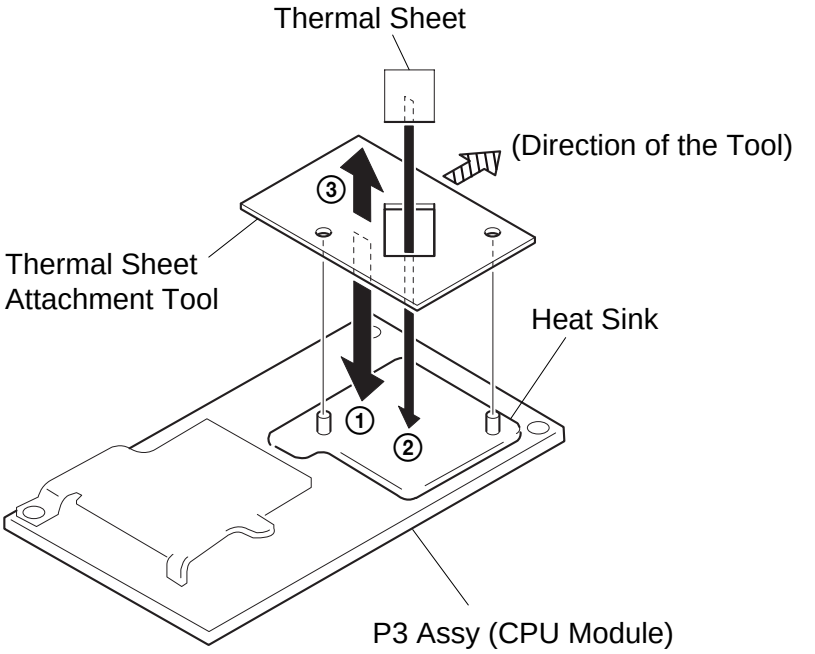
8. SO-DIMM



9. Attaching the Thermal Sheet

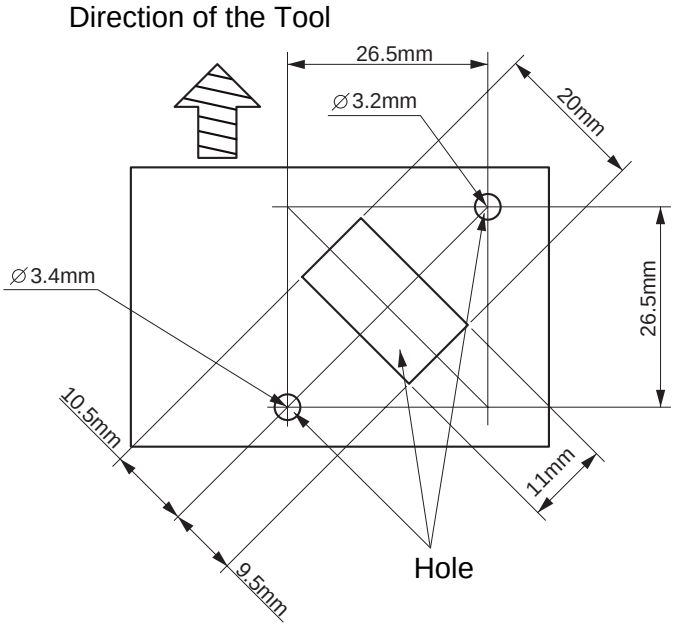
Attach the thermal sheet (20 × 11 mm) to the heat sink of the P3 assembly (CPU module) to be used with the PCG-F370/F390. Because the heat dissipation effect of the thermal sheet (thermal conductivity sheet) changes depending on the position where it is attached, prepare the following [Thermal sheet attachment tool] to attach the thermal sheet.

[Method to attach thermal sheet]



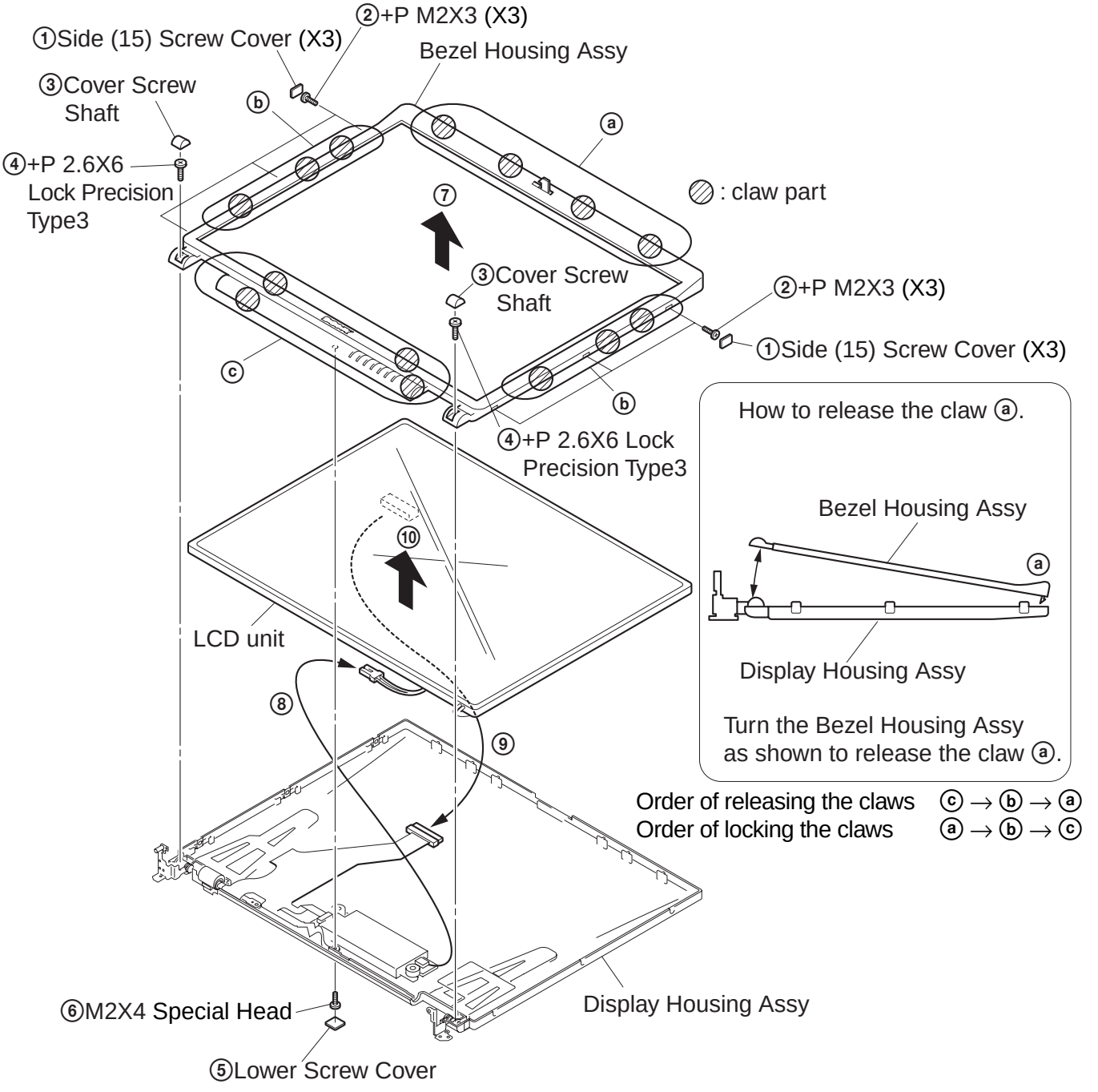
[Thermal sheet attachment tool]

Prepare a thick paper or the like having the following dimensions by writing the thick paper into the actual size of the thermal sheet. (The pattern is shown in the actual sizes.)

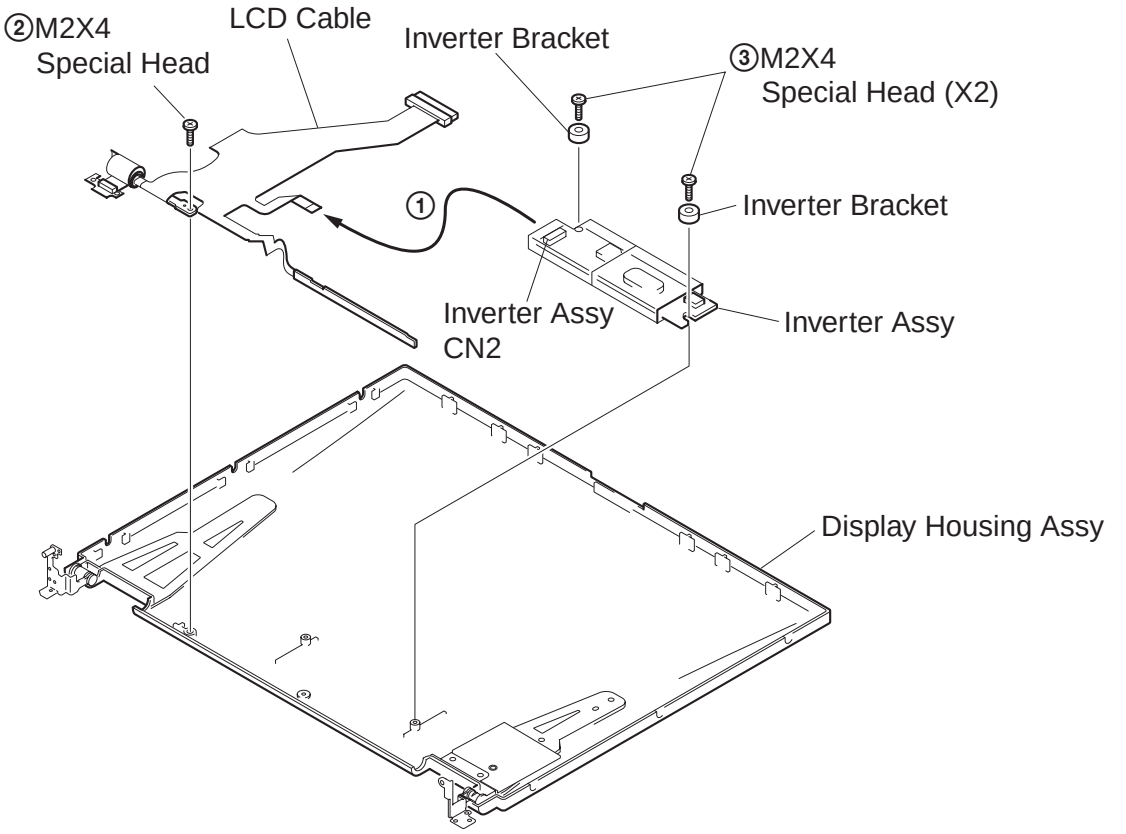


10. LCD Section (F390 MODEL)

1. Bezel Housing Assy, LCD Unit (15 inch)

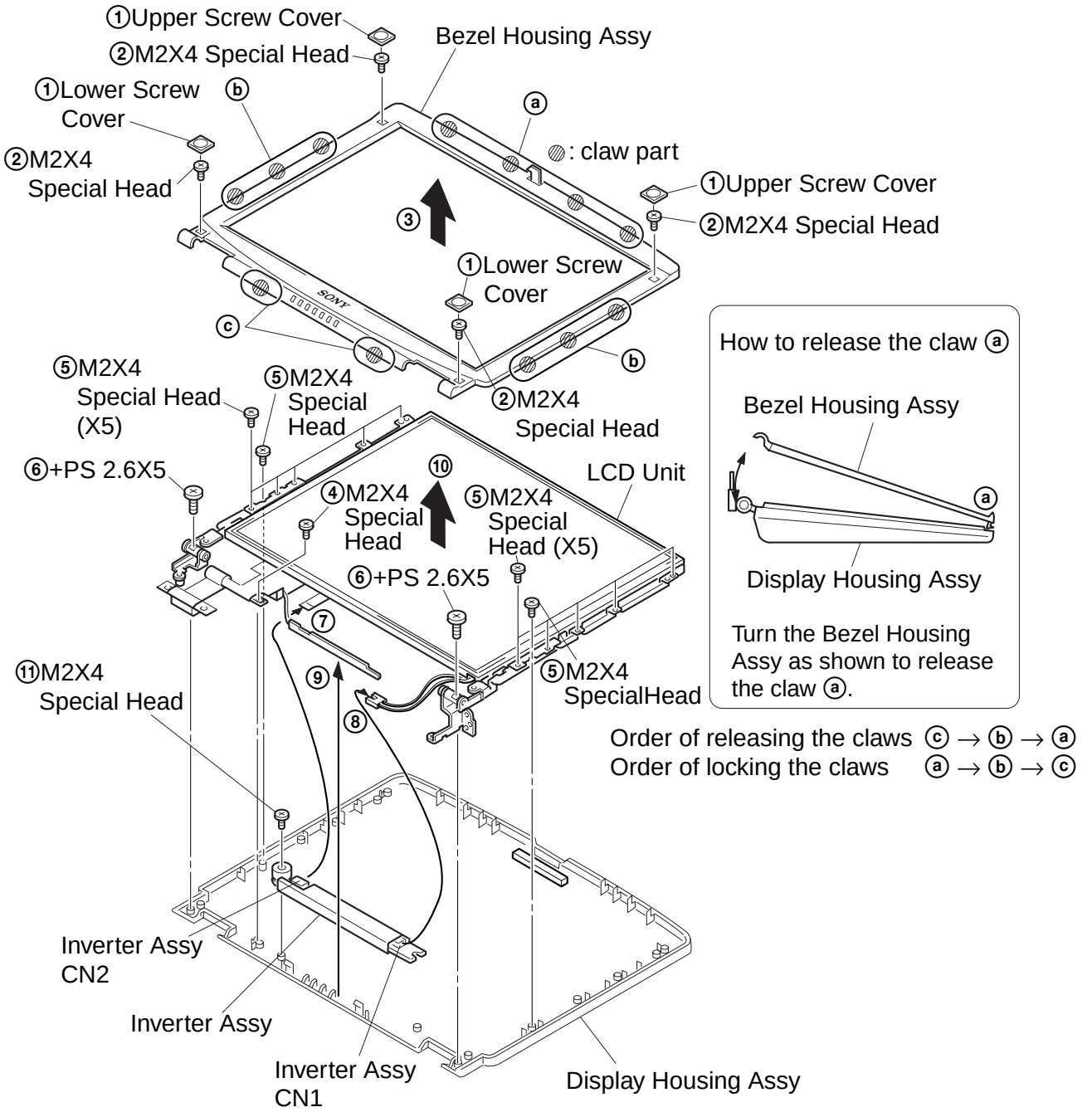

①Side (15) Screw Cover (X3)
②+P M2X3 (X3)
Bezel Housing Assy
③Cover Screw Shaft
④+P 2.6X6 Lock Precision Type3
: claw part
⑦
③Cover Screw Shaft
②+P M2X3 (X3)
①Side (15) Screw Cover (X3)
④+P 2.6X6 Lock Precision Type3
⑩
LCD unit
⑧
⑨
⑥M2X4 Special Head
⑤Lower Screw Cover
Display Housing Assy
How to release the claw ⓐ.
Bezel Housing Assy
Display Housing Assy
Turn the Bezel Housing Assy as shown to release the claw ⓐ.
Order of releasing the claws ⓒ → ⓑ → ⓐ
Order of locking the claws ⓐ → ⓑ → ⓒ

2. Inverter Assy, LCD Cable, Display Housing Assy

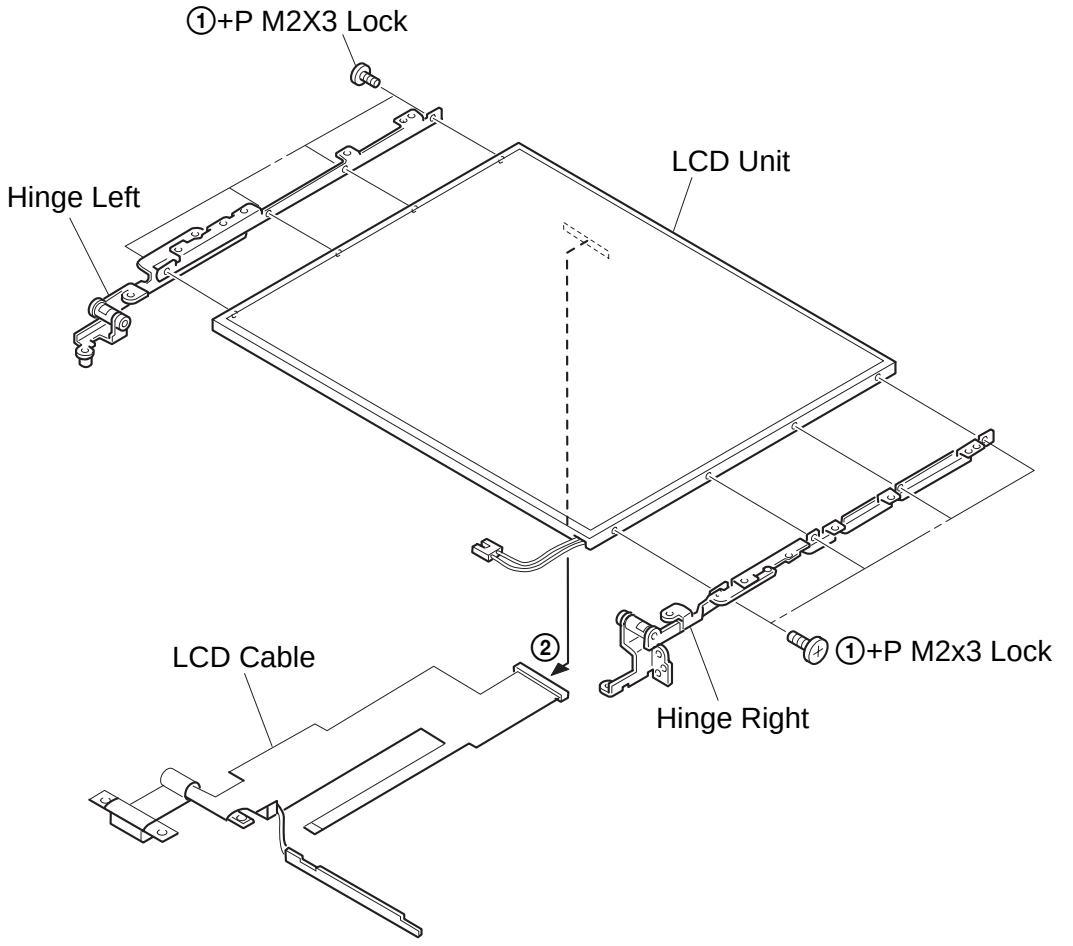


11. LCD Section (F370 MODEL) (Made by Samsung)

1. Bezel Housing Assy, LCD Unit (14 inch), Display Housing Assy, Inverter Assy

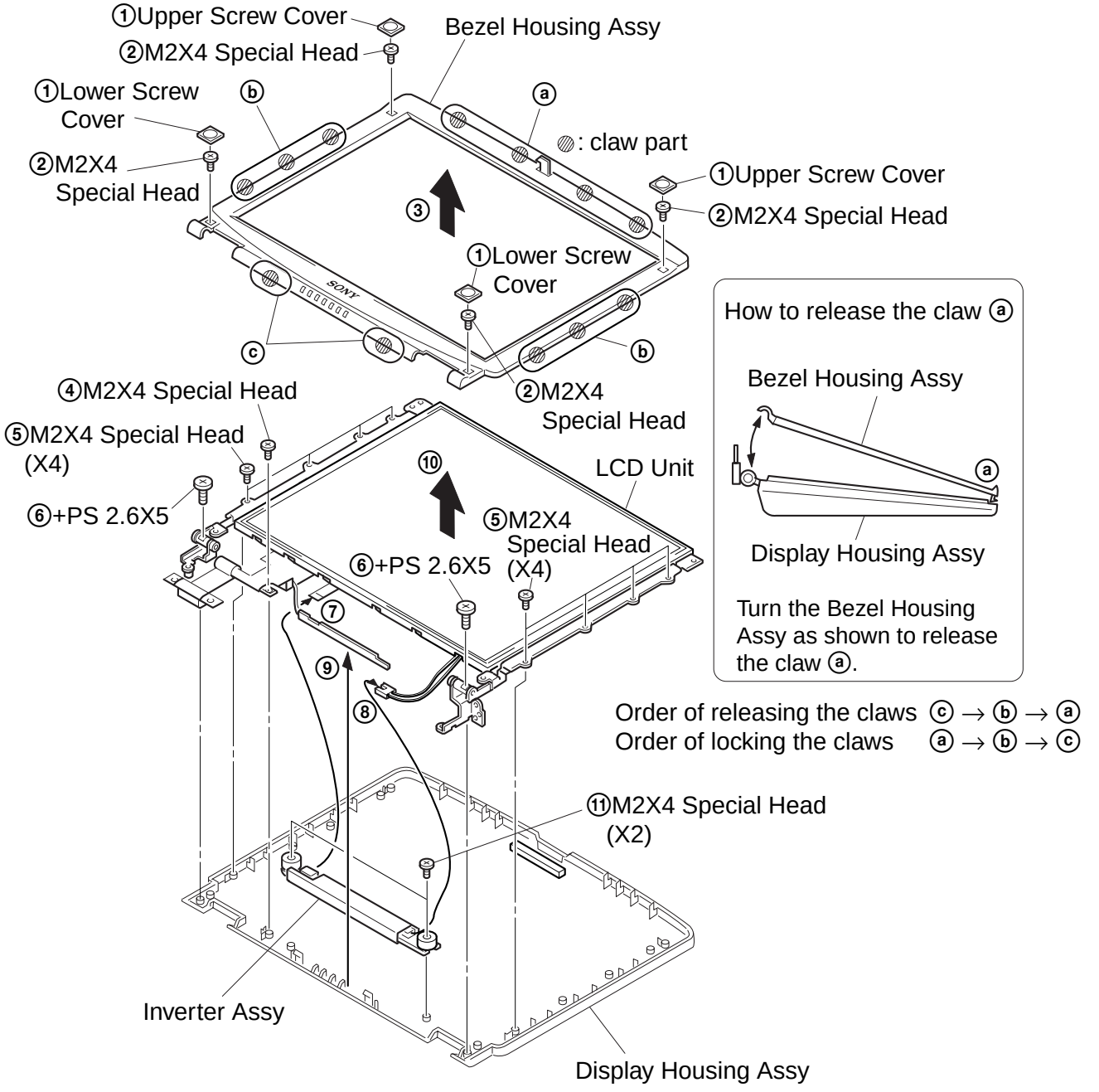


2. Hinge Left, Hinge Right, LCD Cable

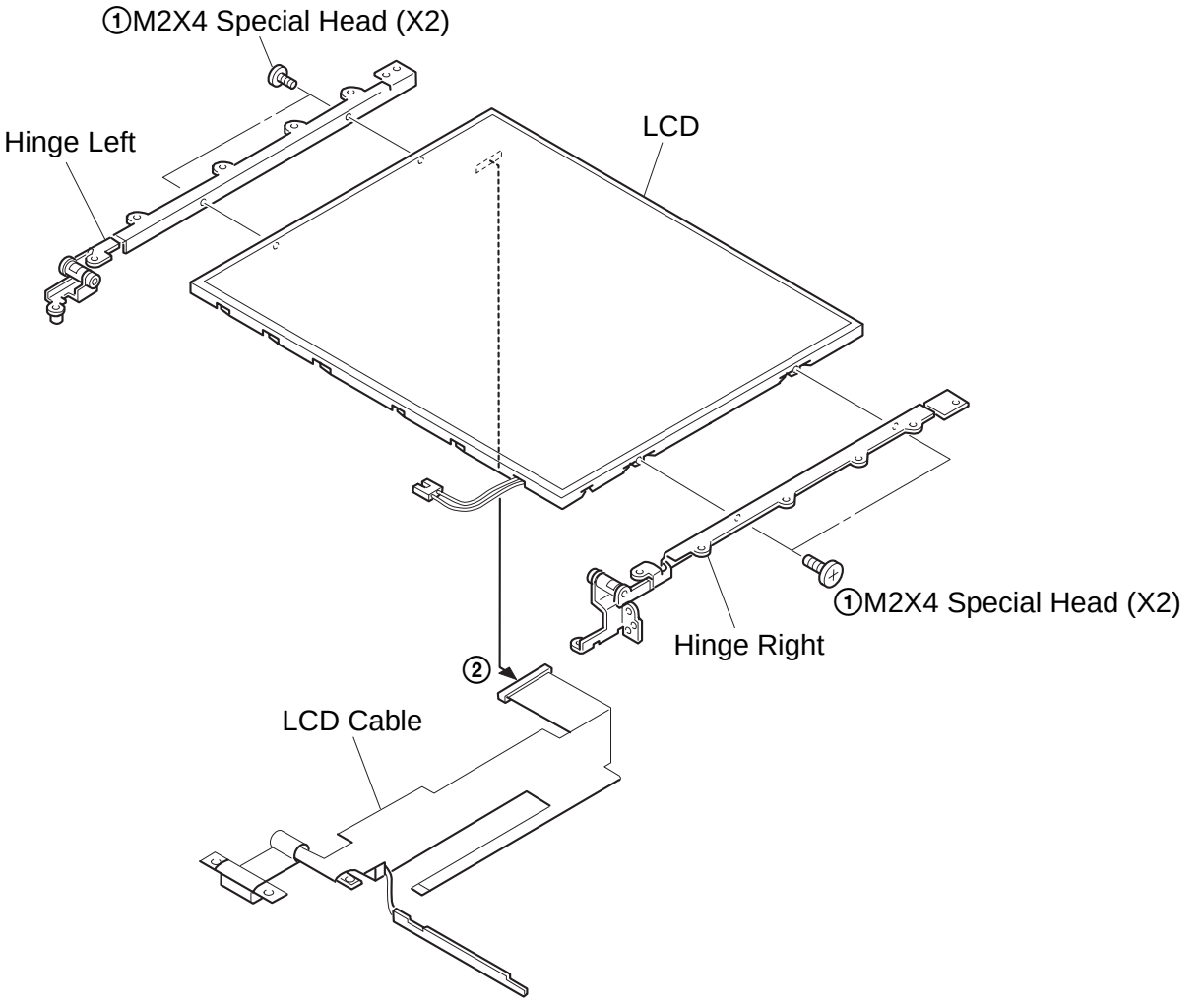


12. LCD Section (F370 MODEL) (Made by Hitachi)

1. Bezel Housing Assy, LCD Unit (14 inch), Display Housing Assy, Inverter Assy



2. Hinge Left, Hinge Right, LCD Cable



CHAPTER 2.
SELF DIAGNOSTICS

2-1. Required Tools and Peripheral Devices

	Tools and Peripheral Devices	Test Items
1	Serial Loopback Tool Loopback tool specified by QA Plus and Factory (Refer to next page.)	Serial Port (COM) test
2	Parallel Loopback Tool Loopback Tool specified by QA Plus and Factory (Refer to next page.)	Parallel Port (printer) test
3	V.34 Modem and Line Simulator	Modem test
4	PC Card Tester PCCtest 450 Made by Sycard Corp.	PC Card test
5	USB Tester USB Host Production Tester Made by Computer Access Technology Corp.	USB device test
6	PCG-N505, XR series VAIO for IrDA Function Test	IrDA Function test
7	Port Replicator PCGA-PRF1 for Port Replicator Connector Test	Port Replicator Connector test
8	FDD Bay supplied	FDD test
9	Diagnostics FD Media	(Diagnostics starting software)
10	Diagnostics CD-ROM Media	(Diagnostics software)
11	Battery supplied	Battery related tests
12	AC Adaptor supplied	(Power supply for diagnostics)
13	PCG-N505, XR series VAIO for IEEE1394 Test	IEEE1394 Test

[Reference] On Serial/Parallel Loopback Tool

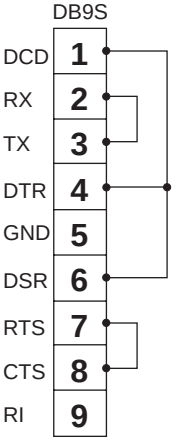
• The serial loopback tool and the parallel loopback tool are necessary for diagnostics of the serial communication line and the parallel communication line. Fabricate the serial loopback tool and the parallel loopback tool locally referring to the connection diagrams shown below.

Serial Loopback Tool : For diagnostics of serial port

SERIAL LOOPBACK CONNECTOR CONNECTION DIAGRAM

• Connector Types DB9S (Female)
• Interface Standard RS-232C
• Loopback Data & Handshake

NOTE: The black round mark "●" indicates soldering.

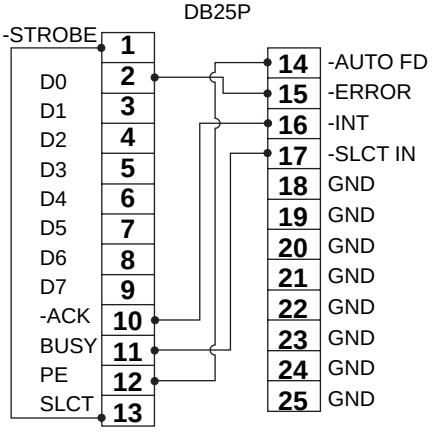


Parallel Loopback Tool : For diagnostics of parallel port

PARALLEL LOOPBACK CONNECTOR CONNECTION DIAGRAM

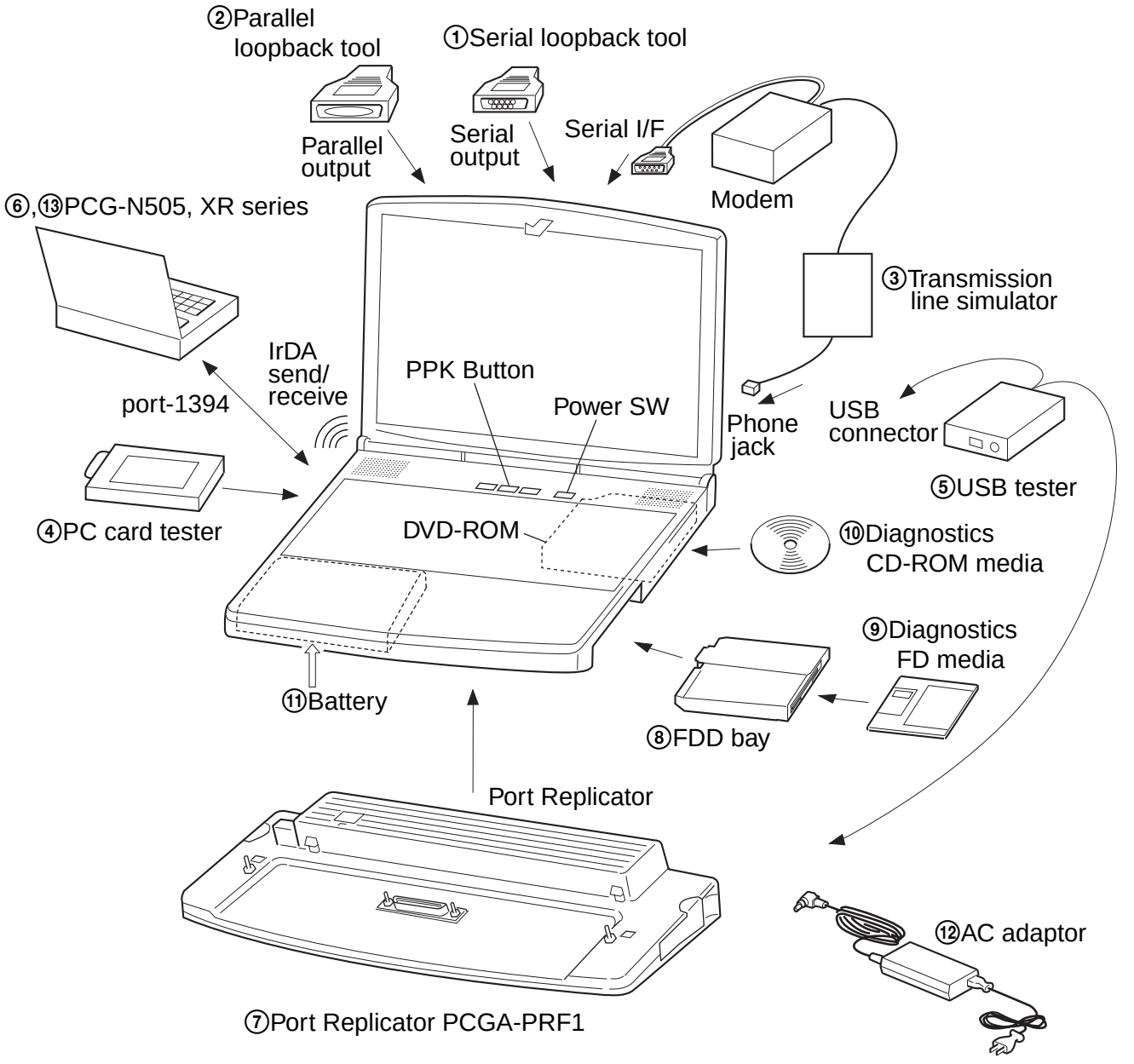
• Connector Types DB25P(Male)
• Interface Standard Centronics
• Loopback Status to Commands

NOTE: The black round mark "●" indicates soldering.



2-2. Tools and Peripheral Device Connection

System Connection Diagram



2-3. How to Start the Diagnostics

Precaution: The supplied floppy disk containing the diagnostics program can be damaged because it will be written the Log and used as FDD read-write test. Be sure to make a backup of the diagnostics floppy disk and use a backup disk for diagnostics.

Starting up the diagnostics

- Specify the FDD as the startup drive so that the system boots up from the diagnostics FD.
- Insert the diagnostics CD-ROM media into the DVD-ROM bay. Insert the diagnostics FD into the FDD bay. Turn off the main power of the system once and back on to boot up the system from the diagnostics FD.
- When the system is booted from the diagnostics floppy disk, the start menu appears. Select a desired item to execute the diagnostics. When PASS is displayed as the result of diagnostics, the test is ended without any errors. When FAIL is displayed as the result of diagnostics, the test is ended with some errors.

2-4. Test Items

The test items are shown below.

2-4-1. Start Menu

1: Diagnostics for PCG-F3 Series
Select the respective test items of the PCG-F3 Series Diagnostics from the menu and perform the selected test.

2: PASSWORD BYPASS
The password which bypasses the PASSWORD is created.

3: Quit START MENU
Exits the diagnostics.

2-4-2. PCG-F3 Series Diagnostics

List of Test Items

The test items which are performed one after another or by selecting a specific item, are listed as follows. (Short descriptions of the respective test items follow later.)

1. Machine configuration
2. Check system bios revision
3. Check configuration
4. Battery test group
   (1) Battery 1 test
   (2) Battery 2 test
   (3) Fan test
5. CD ROM test
6. FDD test
7. HDD test
8. Touch pad test
9. LED test
10. Main memory test
11. Main system test

12. Mouse test
13. Parallel loopback test
14. PC Card test
15. Serial loopback test
16. USB test
17. Port Replicator connector test
18. IrDA test
19. Video test
20. IEEE1394 test
21. PPK test
22. Aging (Short time) HDD test
23. Aging (Long time) HDD test
24. Aging (Short time)
25. Aging (Long time)

The following tests are performed using Windows 98.

A. Audio test group
   (1) Audio test (MIC test)
   (2) Audio test (Speaker test)

B. Modem loopback test

2-4-3. Short Descriptions of the Test Items

1. Machine configuration
   Selects the type of configuration of the PCG-F3 series computer.
   Because some diagnostics operate based on the selected configuration, perform this item first of all.

2. Check system bios revision
   Indicates the BIOS which is currently used.

3. Check configuration
   Tests clocks and CPUID.

4. Battery test group
   Performs charging and discharging test of a battery.
   A used battery with 30% to 80% already charged battery is necessary.
   (1) Battery 1 test
      This tests the battery 1.
   (2) Battery 2 test
      This tests the battery 2.

      Start up the battery 2 test program only from the FD image from the DOS command line of the CD-ROM/DVD-ROM as described below.
      Execute the following procedure and insert both the CD-ROM and FDD.
      1. Selects “3: Quit MAIN MENU” from the main menu.

2. The ordinary DOS prompt “A:\>” appears. Input “G:[Enter]”.
   Then remove the FDD and insert the battery 2 instead of the FDD.
3. The prompt “G:\>PRG” appears and the active drive is changed. Input “CD \FD” to change directory.
4. When the prompt “G:\FD>” appears, input the command “BATT2”.
5. The battery 2 test starts. Execute the battery 2 test by following the instructions that are displayed.
6. Remove the battery 2 from the bay and insert the FDD that is removed in step 2.
7. When the test is complete, the prompt returns to “G:\FD>”. Input “A:” to change the drive.
8. Input “AUTOEXEC” to return to the main menu.

(3) Fan test

This tests the fan.

5. CD ROM test

Tests the CD-ROM.

6. FDD test

Tests the FDD. Note that the diagnostics floppy disk can be damaged when this test ends in fail.

7. HDD test

Tests the HDD.

8. Touch pad test

Tests the touch pad. Start pressing the keyboard surely from an end of a keyboard.
The Fn key is disabled. Press “Fn+End” instead.

9. LED test

Check that the LEDs start illuminating from the left of the LEDs.

10. Main memory test

Tests the memory.

11. Main system test

Tests the entire system including CPU, MATH and DMA.

12. Mouse test

Tests the mouse. Move the cursor inside the white square mark (□) and operate the system in accordance with instruction displayed.

13. Parallel loopback test

Tests the parallel (printer) port. The jig is necessary.
Connect the jig to the parallel port.

14. PC Card test

Tests the PC card. The PC card tester jig is necessary. Insert and remove the PC card tester in accordance with instruction displayed.

15. Serial loopback test

Tests the COM port. The serial loopback jig is necessary.
Connect the serial loopback jig to the COM port.

16. USB test

Tests the USB port. To perform this test, the USB jig is necessary.
Connect the USB jig to the USB port.

17. Port Replicator connector test

To perform this test, the port replicator and USB tester are necessary.

18. IrDA test

Tests the IrDA communication.
To perform this test, the PCG-N505, XR series computer is necessary for communication.

19. Video test

Tests the circuit blocks related to the video display.
Tests the various video modes.

20. IEEE1394 test

Executes the data transfer test of the IEEE1394.

21. PPK test

Tests the PPK.

22. Aging (Short time) HDD test

Executes the memory and main system tests repeatedly including the HDD test.
It takes about four hours. Contents of HDD are destroyed when this test is performed.

23. Aging (Long time) HDD test

Executes the memory and main system tests repeatedly including the HDD test.
It takes about ten hours. Contents of HDD are destroyed when this test is performed.

24. Aging (Short time)

Executes the memory and main system tests repeatedly. It takes about fifteen minutes.

25. Aging (Long time)

Executes the memory and main system tests repeatedly. It takes about ten hours.

A. Audio test group

Tests the audio related items.

(1) Audio test (MIC test)

Tests microphone.

(2) Audio test (Speaker test)

Tests speaker.

B. Modem loopback test

Tests the data send/receive between modem and computer. The jig modem is necessary.

Connect the jig modem to the modem port of the PCG-F3 series VAIO.

2-5. About the PASSWORD Bypass

When item " 3: Return to START MENU " of the start menu is selected, the following display appears.

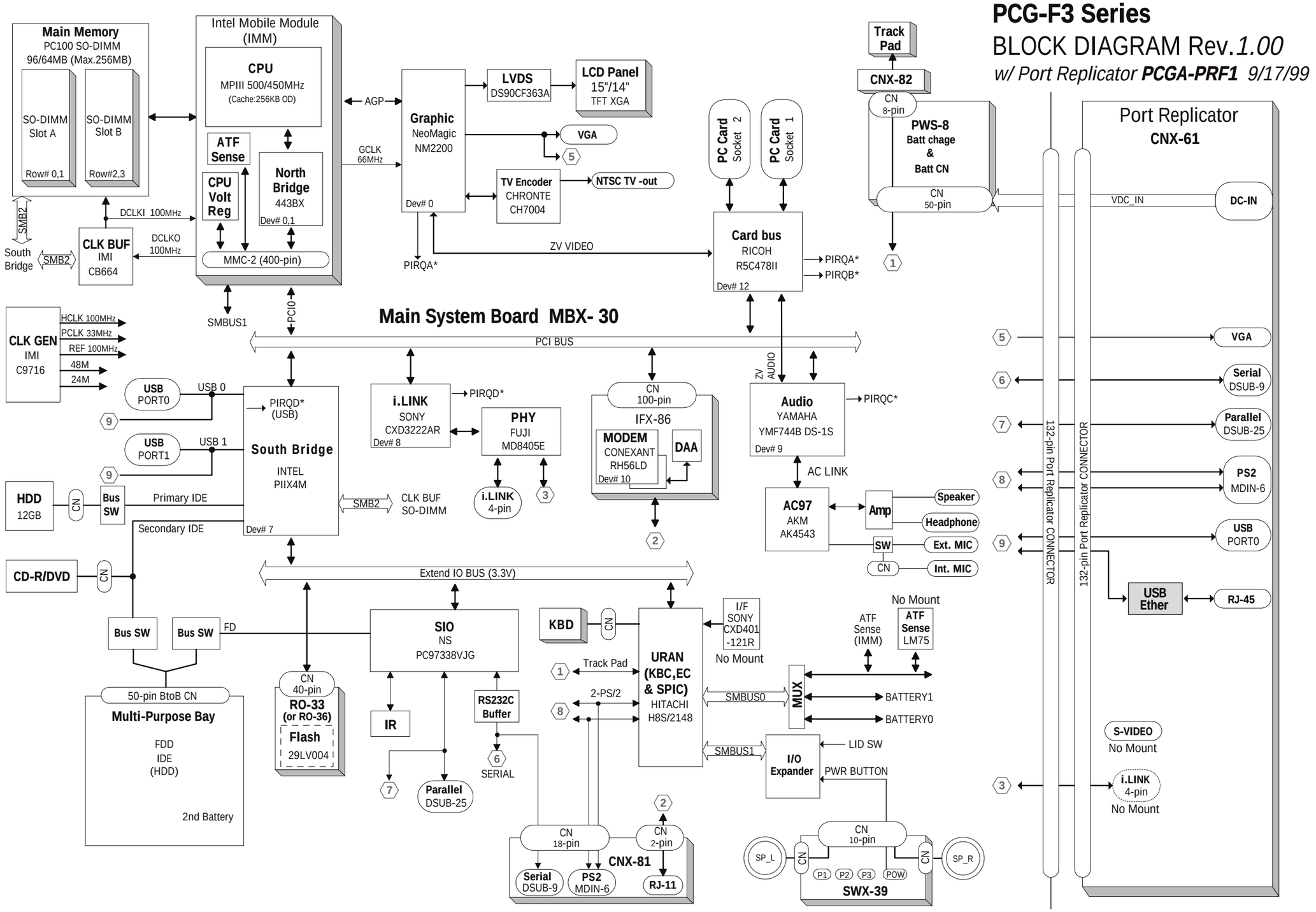
```
Password Bypass Program
© 1999 Sony Corporation All rights reserved.
Input last 7 bytes of Serial number
(if serial xxxxxxxx-ooooooo , input serial number → ooooooo)
input serial number →
```

Enter the lower seven digits of the serial number of your system. Then the following message appears.

```
Bypassed pass word → @@@@@@@
```

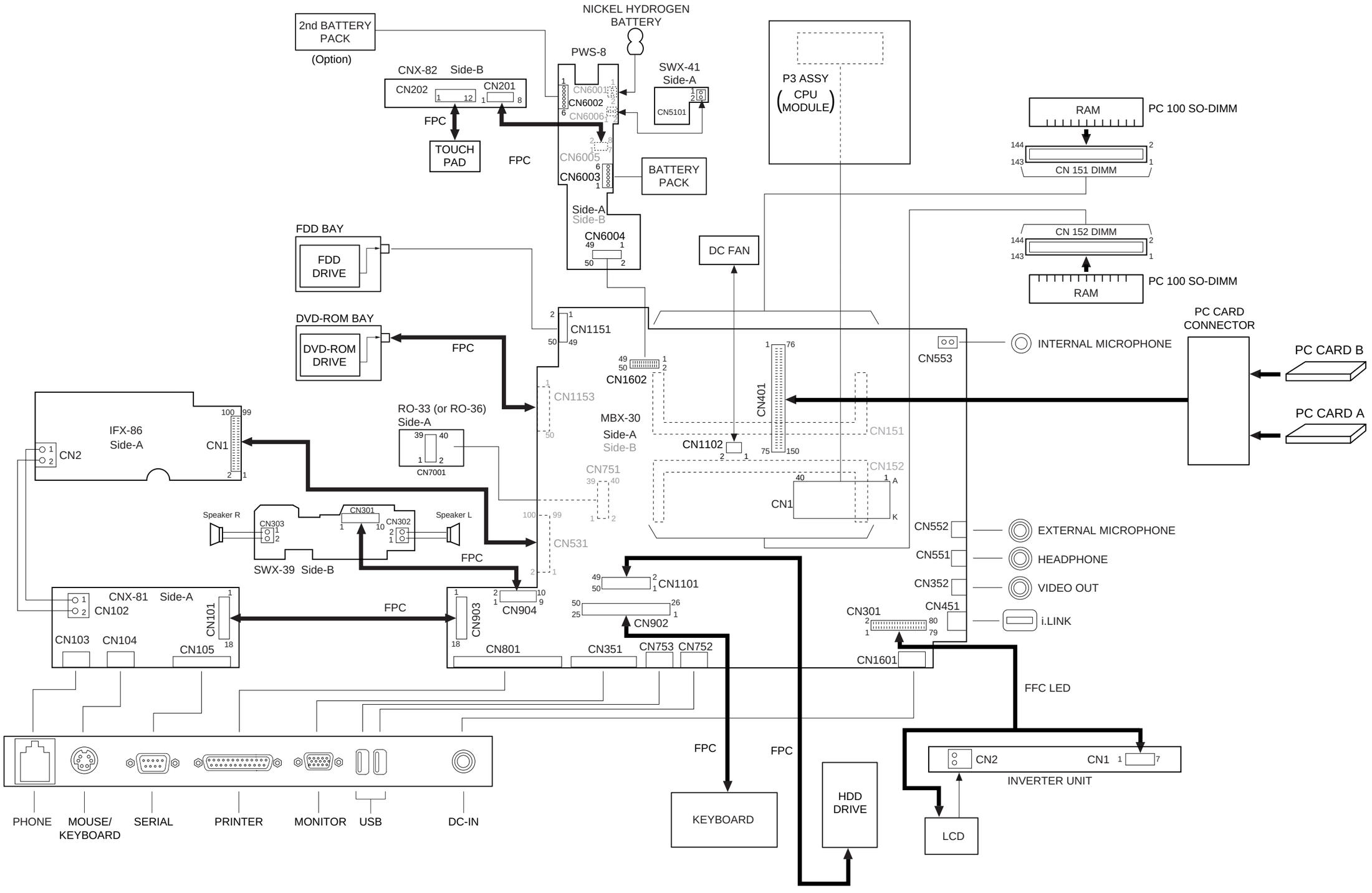
Enter the lower seven digits of the serial number of your system into the @@@@@@@ portion of the password input display.

CHAPTER 3.
BLOCK DIAGRAM



CHAPTER 4.

FRAME HARNESS DIAGRAM



CHAPTER 5.
EXPLODED VIEWS AND PARTS LIST

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

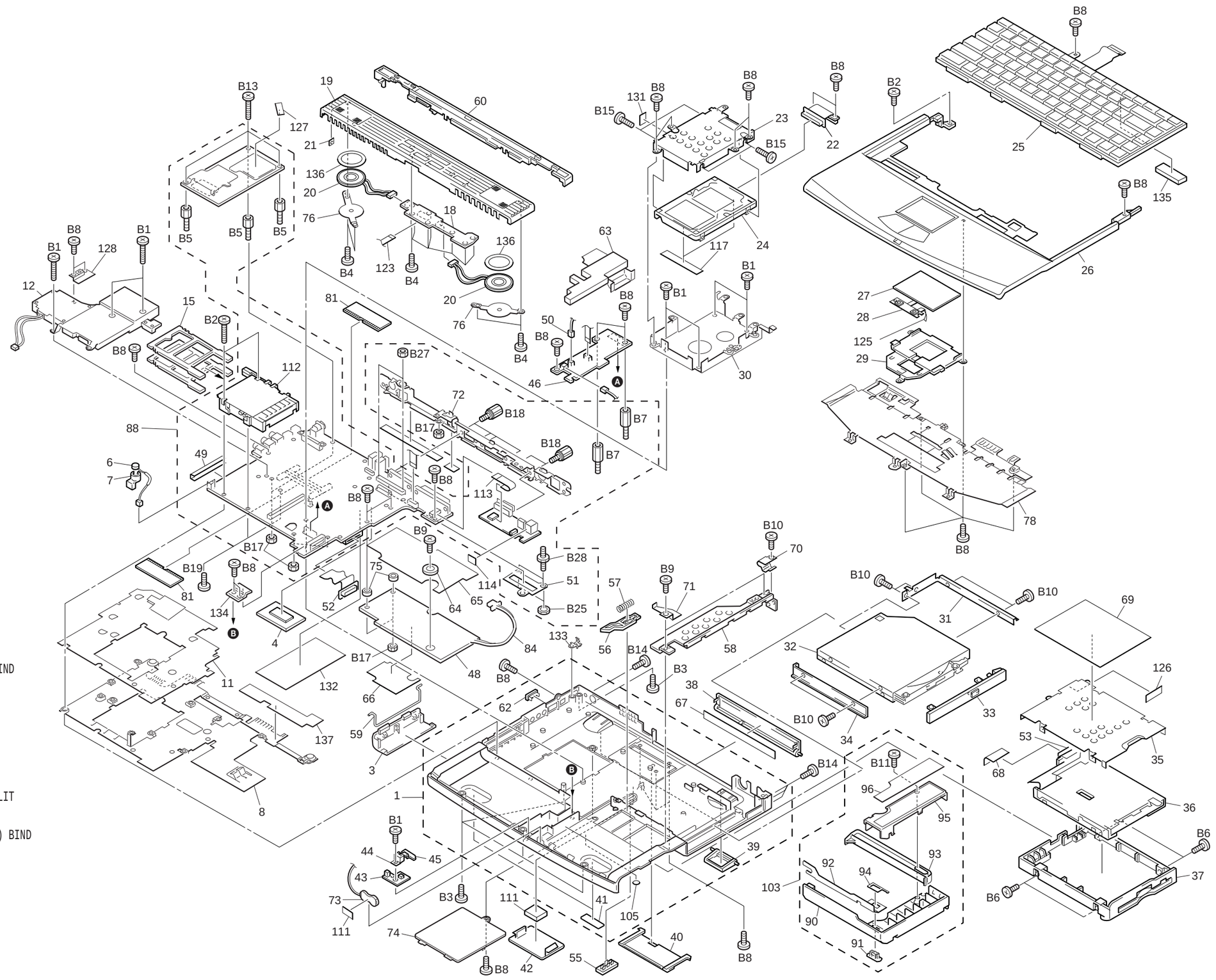
5-1. Main Section

Ref.No.	Part No.	Description
1	X-4622-445-2	ASSY BOTTOM
3	4-640-837-11	DOOR BATTERY
4	A-8056-481-A	RO-33 COMPLETE PWB (or RO-36 COMPLETE PWB)
6	1-542-331-11	MICROPHONE UNIT
* 7	4-641-495-02	HOLDER MIC
* 8	4-644-346-02	HEATSINK BOTTOM
* 11	4-644-348-01	INSULATOR HEATSINK BOTTOM
12	1-763-448-11	WITH, DC FAN HEATSINK
15	4-643-832-01	CARD, DUMMY
18	A-8056-488-A	COMPLETE PWB SWX-39
19	X-4622-449-1	ASSY HOOD KEYBOARD
20	1-529-287-11	SPEAKER UNIT
21	3-718-233-01	NUT, PLATE
22	1-790-639-21	FPC 50PIN (FOR HDD)
23	4-644-339-01	COVER HDD
24	A-8045-920-A	ASSY HDD 12GB (S)
25	1-418-041-11	KEY BOARD UNIT
26	X-4622-446-1	ASSY PALMREST
27	1-759-708-11	PAD, TOUCH
28	A-8056-483-A	COMPLETE PWB CNX-82
29	4-644-352-01	BRACKET PAD
* 30	4-644-336-01	BRACKET, HDD
31	4-640-861-04	BRACKET CD-ROM R
32	1-772-211-11	DVD-ROM (4X)
33	X-4622-495-2	ASSY DOOR DVD-ROM (NHA)
34	4-640-860-02	BRACKET (CD-ROM L)
35	4-640-828-01	PLATE FDD
36	1-772-034-11	FDD
37	X-4622-493-1	ASSY BOTTOM FDD (NHA)
38	4-640-838-11	DOOR I/O
39	4-640-850-11	FOOT REAR
40	4-640-863-12	DOOR DOCKING CONNECTOR
41	4-640-851-01	FOOT FRONT
42	4-637-916-12	DOOR FLASH
43	A-8056-489-A	COMPLETE PWB SWX-41
44	4-644-190-01	LATCH DETECTOR BASE (K)
45	4-635-255-01	LATCH DETECTOR
46	A-8056-487-A	COMPLETE PWB PWS-8
48	A-8056-484-A	COMPLETE PWB IFX-86 (UC)
49	4-644-364-01	INSULATOR PC CARD
50	1-790-585-11	CABLE (2P)
51	X-4622-085-1	ASSY PANEL CONNECTOR
52	1-790-640-11	FPC 50PIN (FOR CD-ROM)
53	1-790-641-11	FPC 50PIN (FOR FDD)
55	4-640-845-11	BUTTON BAY
56	4-644-349-01	LATCH BAY
* 57	4-640-854-01	SPRING BAY
* 58	4-640-855-02	BRACKET BOTTOM
* 59	4-640-857-01	DOOR BATTERY SPRING
60	4-644-345-01	DISPLAY BASE
* 62	4-640-877-01	LENS IR
63	4-644-338-01	COVER BATTERY CONNECTOR
* 64	4-641-188-01	SPACER MODEM
65	4-644-664-01	INSULATOR MODEM A
66	4-644-665-01	INSULATOR MODEM B

Ref.No.	Part No.	Description
* 67	4-641-366-02	LABEL I/O
68	4-641-629-01	INSULATOR FDD
69	4-641-763-01	LABEL FD
* 70	4-641-850-01	SPRING (CD-ROM), PLATE
* 71	4-641-851-02	SPRING (FDD), PLATE
* 72	4-644-337-01	BRACKET I/O
73	1-765-038-11	BATTERY, NICKEL HYDROGEN
74	4-644-358-02	DOOR DIMM
75	4-644-343-01	STAND OFF (IFX)
* 76	4-644-361-01	BRACKET SPK
78	4-644-362-01	PLATE PALMREST
81	8-759-597-28	IC MB8508S064CX-103LDG (PC 100 SO-DIMM, 64MB)
84	1-959-405-11	HARNESS 2P
88	A-8046-409-A	(F370)...MBX-30 (450) ASSY (S) (MBX-30 BOARD/CPU MODULE P3 ASSY (450)/CNX-81 BOARD)
88	A-8046-408-A	(F390)...MBX-30 (500) ASSY (S) (MBX-30 BOARD/CPU MODULE P3 ASSY (500)/CNX-81 BOARD)
90	4-640-833-11	BOTTOM WEIGHT SAVER
91	4-640-834-11	BUTTON WEIGHT SAVER
* 92	4-640-847-01	LATCH WEIGHT SAVER
93	4-640-968-11	ARM WEIGHT SAVER
* 94	4-640-969-01	CLICKER WEIGHT SAVER
* 95	4-640-970-11	COVER WEIGHT SAVER
* 96	4-641-764-01	LABEL WEIGHT SAVER
103	A-8046-136-A	ASSY WEIGHT SAVER (NHA)
* 105	4-641-630-01	COVER BAY HOLE
111	4-636-094-01	CUSHION FLASH
112	1-793-554-11	CONNECTOR, PC CARD 150P
113	1-790-708-11	FFC (MBX-CNX)
114	4-644-667-01	COVER RJ-11
117	4-642-424-01	CUSHION HDD2
123	1-790-711-21	FFC (PPK)
124	1-790-709-11	FFC (SWX-TP)
125	1-790-710-11	FFC (SWX-PWS)
126	4-644-053-01	SPACER FDD
127	4-640-350-01	THERMAL SHEET (See NOTE on page 5-3.)
128	4-645-432-01	GND PLATE HINGE
131	4-644-926-01	CUSHION HDD
132	4-644-347-01	INSULAATOR HDD
* 133	4-644-390-01	BRACKET LOCK
134	4-645-433-01	BRACKET BAY CONNECTOR
135	4-645-496-01	CUSHION KEYBOARD
136	4-644-357-01	CUSHION SPK
137	4-641-835-11	INSULATOR CNX-64

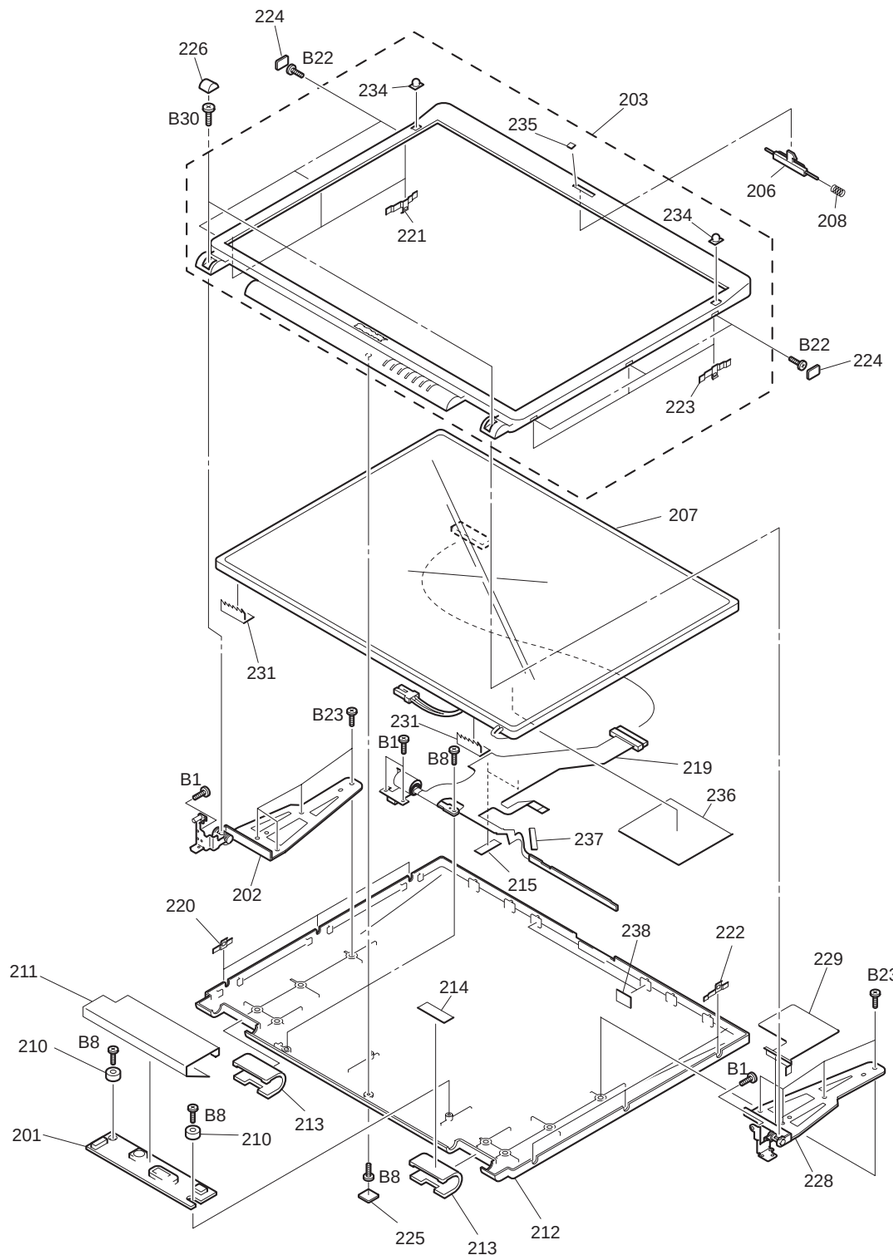
NOTE:

Refer to page 1-6 “ 9. Attaching the Thermal Sheet ” when attaching the thermal sheet (Ref.No. 127) to the P3 ASSY (CPU MODULE).



Ref.No.	Part No.	Description
B1	4-641-726-41	SCREW (M2), SPECIAL HEAD
B2	4-644-518-01	SCREW (M2X18), +B
B3	4-644-899-01	SCREW (M2), 0 NUMBER P3 KIND
B4	4-639-112-01	SCREW M2X4
B5	4-644-402-01	SCREW (MBX)
B6	4-641-656-02	SCREW (M2.5), 0 PLATE P
B7	4-644-402-11	SCREW (MBX)
B8	4-641-726-11	SCREW (M2), SPECIAL HEAD
B9	4-640-694-11	BOLT (M2), SPRING
B10	4-640-694-41	BOLT (M2), SPRING
B11	7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT
B12	4-642-229-01	TAPPING (B 2X)
B13	7-628-253-00	SCREW +PS 2X4
B14	4-645-497-01	SCREW (M2.6), CROSS (HOLE) BIND
B15	4-635-301-01	SCREW M3X4
B17	7-622-205-05	NUT M2 TYPE2
* B18	4-635-966-11	SCREW (HEX)
B19	7-621-772-70	SCREW +B 2X14
B25	3-181-686-01	NUT (N3)(3X0.35)
B27	4-644-790-01	NUT FOR PANEL MOUNT
B28	4-644-789-01	GUIDE SOCKET

5-2. LCD Section (F390 Model)

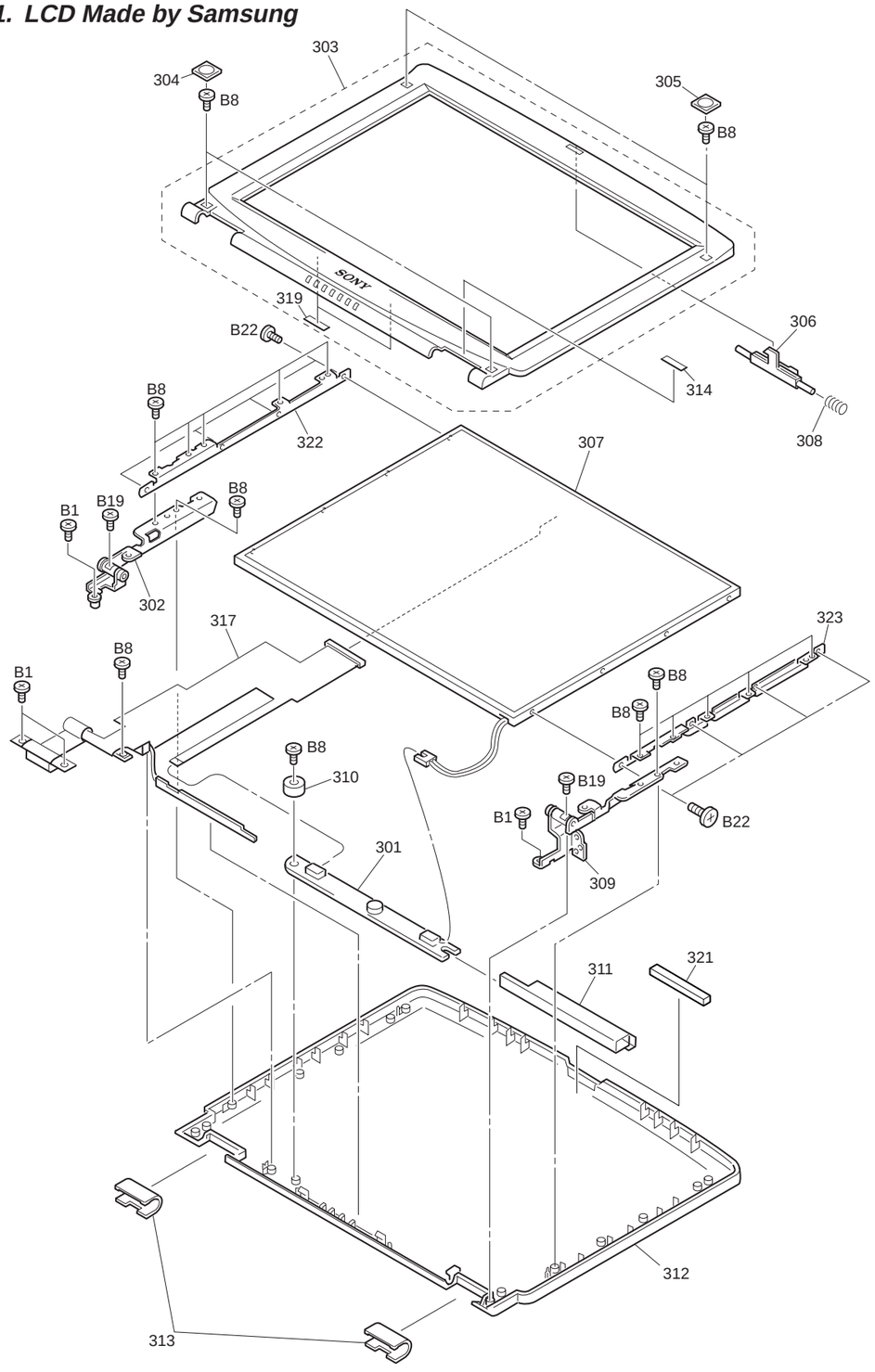


Ref.No.	Part No.	Description
201	1-475-809-31	INVERTER UNIT
202	X-4622-447-1	HINGE LEFT 15G
203	X-4622-416-1	ASSY HOU, BEZEL 15X (UC)
206	4-637-902-41	LATCH
207	1-418-574-11	LCD-UNIT (15.0" TFT-XGA)
208	4-637-903-01	SPRING LATCH
210	4-635-274-01	BRACKET INVERTER
211	4-642-746-11	INSULATOR INVERTER (15)
212	X-4622-253-1	ASSY HOUSING DISPLAY 15X
213	4-642-762-11	COVER HINGE (15)
214	4-645-491-01	LABEL ID
215	4-641-768-01	TAPE (LCD), GND
219	1-676-421-11	PWB, LCD FLEXIBLE PRINT
220	4-642-755-01	BRACKET LCD (DL) 15
221	4-642-756-01	BRACKET LCD (BL) 15
222	4-642-757-01	BRACKET LCD (DR) 15
223	4-642-758-01	BRACKET LCD (BR) 15
224	4-642-759-01	COVER SCREW SIDE (15)
225	4-635-277-11	COVER SCREW LOWER
226	4-643-549-01	COVER SCREW SHAFT
228	X-4622-448-1	HINGE RIGHT 15G
229	4-643-366-11	EDGE GUARD HINGE (15)
231	4-643-837-01	SHIELD (LCD)
234	4-635-276-11	COVER SCREW UPPER
235	4-642-760-01	CUSHION CENTER
236	4-644-153-11	SHIELD TAPE (LCD)
237	4-645-496-01	CUSHION KEYBOARD
238	4-644-332-01	SPACER LCD

Ref.No.	Part No.	Description
B1	4-641-726-41	SCREW (M2), SPECIAL HEAD
B8	4-641-726-11	SCREW (M2), SPECIAL HEAD
B22	4-642-761-01	+P M2X3 LOCK
B23	4-644-165-01	SCREW (M2.6X4), 0 PLATE P1 MAIN
B30	4-643-550-01	+P 2.6X6 LOCK PRECISION TYPE3

5-3. LCD Section (F370 Model)

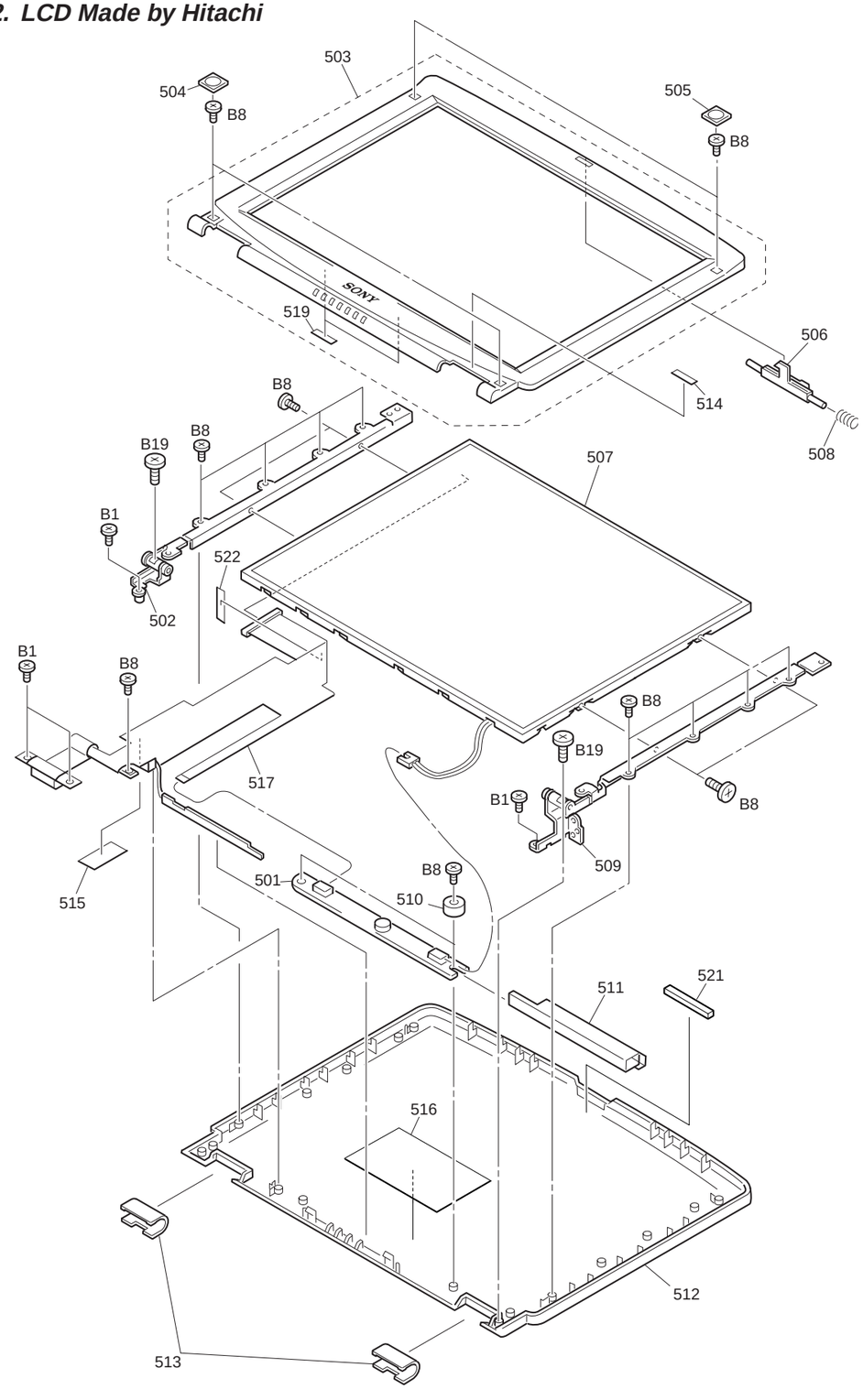
5-3-1. LCD Made by Samsung



Ref.No.	Part No.	Description
301	1-418-578-12	INVERTER UNIT
302	X-4622-486-1	HINGE LEFT 14G (SA)
303	X-4622-431-1	ASSY HOU, BEZEL 14 (SA)
304	4-635-277-11	COVER SCREW LOWER
305	4-635-276-11	COVER SCREW UPPER
306	4-637-902-21	LATCH
307	1-418-716-11	ASSY LCD XGA 14T SA
308	4-637-903-01	SPRING LATCH
309	X-4622-487-1	HINGE RIGHT 14G (SA)
310	4-635-274-01	BRACKET INVERTER
311	4-643-767-11	INSULATOR INVERTER (TR)
312	X-4622-430-2	ASSY HOU, DISPLAY 14 (SA)
313	4-642-762-11	COVER HINGE (15)
314	4-645-491-11	LABEL ID
317	1-791-898-11	PWB, LCD FLEXIBLE PRINT
* 319	3-909-058-01	SHEET (D), ADHESIVE
321	4-642-040-01	CUSHION LCD (3S)
* 322	4-644-163-01	BRACKET LCD LEFT 14 (SA)
* 323	4-644-164-01	BRACKET LCD RIGHT 14 (SA)

Ref.No.	Part No.	Description
B1	4-641-726-41	SCREW (M2), SPECIAL HEAD
B8	4-641-726-11	SCREW (M2), SPECIAL HEAD
B19	7-628-254-00	SCREW +PS 2.6X5
B22	4-642-761-01	+P M2X3 LOCK

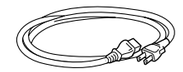
5-3-2. LCD Made by Hitachi



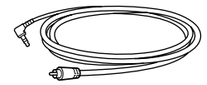
Ref.No.	Part No.	Description
501	1-418-297-22	INVERTER UNIT
502	X-4622-458-1	HINGE LEFT 14G (H)
503	X-4622-396-1	ASSY HOU, BEZEL 14 (NH)
504	4-635-277-11	COVER SCREW LOWER
505	4-635-276-11	COVER SCREW UPPER
506	4-637-902-31	LATCH
507	A-8045-723-A	ASSY LCD XGA 14T (S)
508	4-635-272-01	SPRING,COMPRESSION
509	X-4622-459-1	HINGE RIGHT 14G (H)
510	4-635-274-01	BRACKET INVERTER
511	4-640-892-11	INSULATOR INVERTER
512	X-4622-394-1	ASSY HOU, DISPLAY 14 (NH)
513	4-642-762-11	COVER HINGE (15)
514	4-645-491-41	LABEL ID
515	4-641-768-01	TAPE (LCD), GND
* 516	4-642-228-02	SHEET, RADIATION
517	1-791-899-11	PWB, LCD FLEXIBLE PRINT
* 519	3-909-058-01	SHEET (D), ADHESIVE
521	4-642-040-01	CUSHION LCD (3S)
522	3-907-769-01	SHEET (B), ADHESIVE
B1	4-641-726-41	SCREW (M2), SPECIAL HEAD
B8	4-641-726-11	SCREW (M2), SPECIAL HEAD
B19	7-628-254-00	SCREW +PS 2.6X5

Ref.No.	Part No.	Description
		ACCESSORIES
		**********
⚠401	1-782-614-11	CORD, POWER
402	A-8046-136-A	ASSY WEIGHT SAVER (NHA)
⚠403	1-418-579-11	ADAPTOR, A.C.
404	1-528-934-13	BATTERY PACK, LITHIUM ION
405	1-575-875-11	CORD, CONNECTOR
	4-644-947-01	USER GUIDE
	4-644-949-01	READ ME FIRST

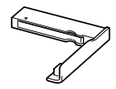
401
Power cord (1)



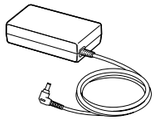
405
Video cable (1)



402
Weight saver (1)



403
AC adaptor (1)



404
Battery pack (1)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.